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ABSTRACT

This curriculum guide for vocational agriculture programs was developed by the state of Mississippi to standardize vocational education course titles and core contents. The objectives contained in this document are common to all vocational agriculture programs in the state. The guide contains course guides for the following courses: agriculture production I and II; agriculture mechanics I and II; horticulture I and II; agriculture business and management I and II; and forestry I and II. Each course contains 9-25 units that consist of objectives, with core/essential objectives indicated; suggested instructional practices; list of suggested resources; list of evaluation and suggested minimum performance standards, with core/essential objectives indicated; and performance record, with core/essential objectives indicated. (KC)

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Standardized Curriculum For

Agriculture

Mississippi Department of Education
Bureau of
Vocational, Technical
and Adult Education

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STANDARDIZED CURRICULA

FOR

VOCATIONAL AGRICULTURE PROGRAMS

MISSISSIPPI DEPARTMENT OF EDUCATION

BUREAU OF VOCATIONAL TECHNICAL,

AND ADULT EDUCATION

Spring, 1988

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FOREWORD

This volume is intended to be used in the state of Mississippi as a mechanism for standardizing vocational education course titles and core contents. The need for standardization of curricula was triggered by provisions in the Educational Reform Act of 1982 which mandated:

-- elimination of nearly all currently existing curriculum requirements and development of new curriculum content that is "properly sequenced" and "coordinated";

-- steps to ensure that students master one level of course work before being advanced to the next level and that progression is properly sequenced;

-- a criterion-referenced statewide testing program that is built upon an identified set of "basic skills" keyed to student performance in grades 3, 5, 8, and 11;

-- revised graduation requirements that take into account student performance on the basic skills and also on a test of "functional literacy skills"; and

-- a system of accrediting schools that takes into account the performance of districts and schools and students.

In addition to the mandates of the Educational Reform Act, the Strategic Plan for Vocational and Technical Education in Mississippi also calls for improving the quality of vocational and technical education through the standardization of curricula and the articulation of secondary and postsecondary programs.

Both of these mandates were further reinforced by legislation passed in 1988 (Section 14, H.B. No. 601) which stated that the "State Department of Education shall provide an instructional program and establish guidelines and procedures for managing such a program in the public schools..." Local districts are encouraged to adapt this program and accompanying procedures to all instructional areas. Districts are given the option of adopting the instructional program and management system provided by the State Department of Education or adopting their own program as long as it meets or exceeds the criteria established by the State Department of Education.

The legislation calls the State Department of Education to provide for instructional program and management guidelines which require for every public school district that:

1. All courses taught in Grades K-8 containing skills tested through the Mississippi Basic Skills Assessment Program, all secondary school courses mandated for graduation, and all courses in the end-of-course testing program shall include the State Department of Education's written list of learning objectives.

2. The local school board must adopt the objectives that will form the core curriculum which will be systematically delivered throughout the district.

3. The set of objectives must be accompanied by suggested instructional practices and resources that would help teachers organize instruction. Such instructional practices and resources are to be used as suggestions and the goal of the program is mastery of the objectives by the students and not to limit the way a teacher may teach.

4. Standards for student performance must be established for each core objective in the local program and those standards establish the district's definition of mastery for each objective.

5. At least once during each school year, student performance on the set of learning objectives for each subject must be evaluated. Student performance on each objective must be measured at least once each year.

6. There shall be an annual review of student performance in the instructional program against locally established standards. When weaknesses exist in the local program, the district shall take action to improve student performance.

7. A permanent record of performance for each student must be maintained for all objectives tested by the Basic Skills Assessment Program and Functional Literacy Examination.

8. The State Board of Education and the board of trustees of each school district shall adopt policies to limit and reduce the number and length of written reports that classroom teachers are required to prepare.

9. The law shall not be construed to limit teachers from using their own professional skills to help students master the objectives, nor shall it be construed as a call for more detailed or complex lesson plans or any increase in testing at the local school district level.

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AGRICULTURE PRODUCTION I
COURSE GUIDE

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AGRICULTURE PRODUCTION I
COURSE GUIDE

Unit No.	Title
1	Careers in Production Agriculture
2	Leadership Activities
3	Public Speaking
4	Parliamentary Procedure
5	Selecting and Planning a SOE Program
6	Implementing a SOE Program (Record Keeping)
7	Anatomy and Physiology of Farm Animals
8	Breeds and Selection of Farm Animals
9	Animal Nutrition
10	Animal Health
11	Parts and Classification of Agricultural Plants
12	Plant Growth
13	Plant Nutrition
14	Plant Disease and Pest Control
15	Computer Applications
16	Shop Safety
17	Arc Welding
18	Oxyacetylene Cutting
19	Basic Electricity
20	Small Engines
21	Agricultural Structures

COURSE: Agriculture Production I

Unit 1: Careers in Agricultural Production (3 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify careers available in production agriculture in the local area.
* 2. List the important factors to consider in choosing a career.
3. Select a career and obtain information pertaining to this career.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Homework assignments

Suggested Resources:

Primary Resource(s): Reeder, Dean. Vocational Agriculture IV. Stillwater, Oklahoma State Department of Vocational and Technical Education. 1973.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will name three careers in production agriculture which are available in the local area and state the education and skill requirements of each.
* Objective 2. The student will list five factors to consider in selecting a career.
Objective 3. The student will select a career for further study and gather information on this career.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified careers available in production agriculture in the local area.
* ___ 2. Listed the important factors to consider in choosing a career.
___ 3. Selected a career and obtain information pertaining to this career.

COURSE: Agriculture Production I

Unit 2: Leadership Activities (3 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Use the Official FFA Manual or Student Handbook to discover information about the FFA.

*Indicates essential/core objective

Suggested Instructional Procedures:

Homework assignment

Suggested Resources:

Primary Resource(s): Patton, Bob and Harp, Keith. Vocational Agriculture I. Stillwater: Oklahoma Department of Vocational and Technical Education. 1984.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will complete the Student Assignment "Use the Official FFA Manual."

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Used the Official FFA Manual or Student Handbook to discover information about the FFA.

COURSE: Agriculture Production I

Unit 3: Public Speaking (8 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List guidelines for preparing a successful speech.
* 2. List steps to follow in writing a speech.
3. List reasons for using outlines in delivering a speech.
4. Name the principle parts of an outline.
* 5. Develop an outline for a 3-5 minute speech.
* 6. Demonstrate the ability to present a 3-5 minute speech.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Student presentation

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vo-Tech. 1986

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list 4 guidelines for preparing a successful speech.
* Objective 2. The student will list 5 steps to follow in writing a speech.
Objective 3. The student will list 2 reasons for using an outline in delivering a speech.
Objective 4. The student will name the 3 principal parts of a speech.
* Objective 5. The student will develop an outline for a 3-5 minute speech.
* Objective 6. The student will present a 3-5 minute speech to the class.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed guidelines for preparing a successful speech.
* ___ 2. Listed steps to follow in writing a speech.
___ 3. Listed reasons for using outlines in delivering a speech.
___ 4. Named the principle parts of an outline.
* ___ 5. Developed an outline for a 3-5 minute speech.
* ___ 6. Demonstrated the ability to present a 3-5 minute speech.

COURSE: Agriculture Production I

Unit 4: Parliamentary Procedure (5 days)

Objectives: Upon completion of this unit, the student should be able to:

1. List the purposes of parliamentary procedure.
* 2. Name the different methods for voting in a meeting.
3. Describe the different types of motions.
* 4. Demonstrate the ability to receive and dispose of a main motion.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Classroom demonstration and practice

Suggested Resources:

Primary Resource(s): Patton, Bob and Harp, Keith. Vocational Agriculture I. Stillwater: Oklahoma Department of Vocational and Technical Education. 1984.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will list 3 purposes of parliamentary procedure.

* Objective 2. The student will name 3 methods for voting in a meeting.

Objective 3. The student will describe the four different types of motions and the five major classes of motions with 70% accuracy.

* Objective 4. The student will demonstrate the ability to receive and dispose of a main motion.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Listed the purposes of parliamentary procedure.
* ___ 2. Named the different methods for voting in a meeting.
___ 3. Described the different types of motions.
* ___ 4. Demonstrated the ability to receive and dispose of a main motion.

COURSE: Agriculture Production I

Unit 5: Selecting and Planning a SOE Program (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List the three objectives of SOE.
2. State the minimum requirements for SOE.
3. Describe the two types of SOE.
4. List the benefits of SOE.
* 5. List the factors to consider in selecting a SOE.
6. Identify the important elements of a SOE.
7. Demonstrate the ability to:
* a. Develop a long-range personal plan.
* b. Develop a short-range personal plan.
* c. Complete a training agreement.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Class and homework assignments

Suggested Resources:

Primary Resource(s): McCully, Jimmy. Basic Vocational Education - Section IIIA - Introduction to Vocational Agriculture. Mississippi State: Research and Curriculum Unit. 1987.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list the three objectives of SOE.
Objective 2. The student will state the minimum requirements for SOE.
Objective 3. The student will describe the two types of SOE.
Objective 4. The student will list two benefits of SOE.
* Objective 5. The student will list three factors to consider in selecting a SOE.
Objective 6. The student will identify the five important elements of a SOE.
Objective 7. The student will demonstrate the ability to:
* a. Develop a long-range personal plan.
* b. Develop a short-range personal plan.
* c. Complete a training agreement.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed the three objectives of SOE.
___ 2. Stated the minimum requirements for SOE.
___ 3. Described the two types of SOE.
___ 4. Listed the benefits of a SOE.
* ___ 5. Listed the factors to consider in selecting a SOE.
___ 6. Identified the important elements of a SOE.
___ 7. Demonstrated the ability to:
* ___ a. Develop a long-range personal plan.
* ___ b. Develop a short-range personal plan.
* ___ c. Complete a training agreement.

COURSE: Agriculture Production I

Unit 6: Implementing a SOE (Recordkeeping) (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Describe why record keeping is important.
* 2. Name the components of an ownership SOE record.
* 3. Describe how expense records are kept.
* 4. Describe how income records are kept.
* 5. Describe how inventory records are kept.
* 6. Describe how enterprise financial records are kept.
* 7. Describe how records of other learning activities are kept.
* 8. Name the components of the placement SOE record.
9. Describe how records of learning activities are kept.
10. Describe how SOE program records are summarized.
11. Describe how records of leadership activities are kept.
* 12. Describe how the net worth statement is kept.
13. Demonstrate the ability to:
* a. Keep income and expense records.
* b. Keep inventory records.
* c. Compute enterprise summaries.
* d. Keep placement records.
* e. Summarize the SOE program.
* f. Keep leadership activity records.
* g. Compute a net worth statement.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Classroom and homework assignments

Suggested Resources:

Primary Resource(s): McCully, Jimmy. Basic Vocational Education - Section IIIA - Introduction to Vocational Agriculture. Mississippi State: Research and Curriculum Unit. 1987.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will describe why record keeping is important.
* Objective 2. The student will name five components of an ownership SOE record.
* Objective 3. The student will describe how expense records are kept.
* Objective 4. The student will describe how income records are kept.

* Objective 5. The student will describe how inventory records are kept.

* Objective 6. The student will describe how enterprise financial records are kept.

* Objective 7. The student will describe how records of other learning activities are kept.

* Objective 8. The student will name three components of the placement SOE record.

Objective 9. The student will describe how records of learning activities are kept.

Objective 10. The student will describe how SOE program records are summarized.

Objective 11. The student will describe how records of leadership activities are kept.

* Objective 12. The student will describe how the net worth statement is kept.

Objective 13. The student will demonstrate the ability to:

* a. Keep income and expense records.
* b. Keep inventory records.
* c. Compute enterprise summaries.
* d. Keep placement records.
* e. Summarize the SOE program.
* f. Keep leadership activity records.
* g. Compute a net worth statement.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Described why record keeping is important.
* ___ 2. Named the components of an ownership SOE record.
* ___ 3. Described how expense records are kept.
* ___ 4. Described how income records are kept.
* ___ 5. Described how inventory records are kept.
* ___ 6. Described how enterprise financial records are kept.
* ___ 7. Described how records of other learning activities are kept.
* ___ 8. Named the components of the placement SOE record.
___ 9. Described how records of learning activities are kept.
___ 10. Described how SOE program records are summarized.
___ 11. Described how records of leadership activities are kept.
___ 12. Described how the net worth statement is kept.
13. Demonstrated the ability to:
* ___ a. Keep income and expense records.
* ___ b. Keep inventory records.
* ___ c. Compute enterprise summaries.
* ___ d. Keep placement records.
* ___ e. Summarize the SOE program.
* ___ f. Keep leadership activity records.
* ___ g. Compute a net worth statement.

COURSE: Agriculture Production I

Unit 7: Anatomy and Physiology of Farm Animals (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List the different systems of the body anatomy of a animal.
2. Describe the function(s) of each system.
* 3. Describe the reproductive cycle of domestic animals.
* 4. Describe the digestive process in ruminant animals.
* 5. Describe the digestive process in non-ruminant animals.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): McCully, Jimmy. A Reference Unit on Basic Principles of Animal Science. Mississippi State: Research and Curriculum Unit. 1976.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list the 10 different systems of the body anatomy of a animal with 70% accuracy.
Objective 2. The student will describe the function(s) of each system with 70% accuracy.
* Objective 3. The student will describe the reproductive cycle of domestic animals with 70% accuracy.
* Objective 4. The student will describe the digestive process in ruminant animals with 70% accuracy.
* Objective 5. The student will describe the digestive process in non-ruminant animals with 70% accuracy.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed the different systems of the body anatomy of a animal.
___ 2. Described the function(s) of each system.
* ___ 3. Described the reproductive cycle of domestic animals.
* ___ 4. Described the digestive process in ruminant animals.
* ___ 5. Described the digestive process in non-ruminant animals.

COURSE: Agriculture Production I

Unit 8: Breeds and Selection of Farm Animals (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the major breeds of beef cattle.
* 2. List desirable characteristics of beef breeding stock.
* 3. Identify the major breeds of hogs.
* 4. List desirable characteristics of hog breeding stock.
* 5. Identify the major breeds of dairy cattle.
* 6. List the desirable characteristics of a dairy breeding stock.

*Indicates essential/core objective

Suggested Instructional Procedures:

Illustrated lecture and discussion

Suggested Resources:

Primary Resource(s): Patton, Bob and Harp, Keith. Vocational Agriculture I. Stillwater: Oklahoma Department of Vocational and Technical Education. 1984.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify 10 major breeds of beef cattle.
* Objective 2. The student will list eight desirable characteristics of beef bulls and cows.
* Objective 3. The student will identify four major breeds of hogs.
* Objective 4. The student will list 10 desirable characteristics of a hog.
* Objective 5. The student will identify four major breeds of dairy cattle.
* Objective 6. The student will list 10 desirable characteristics of a dairy cow.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the major breeds of beef cattle.
* ___ 2. Listed desirable characteristics of beef breeding stock.
* ___ 3. Identified the major breeds of hogs.
* ___ 4. Listed desirable characteristics of hog breeding stock.
* ___ 5. Identified the major breeds of dairy cattle.
* ___ 6. Listed the desirable characteristics of a dairy breeding stock.

COURSE: Agriculture Production I

Unit 9: Animal Nutrition (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Name and define the different categories of feeds.
* 2. Name the nutrient groups and identify their functions.
* 3. List factors to consider in the make-up (formulation) of an animal ration.
* 4. Describe the two systems used in evaluating ration formulations and their definitions.
5. Interpret nutritional information from tables.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Class and homework assignments

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vo-Tech. 1986

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will name the three feed categories and state their definitions.
* Objective 2. The student will name the six nutrient groups and state one function of each group.
* Objective 3. The student will list four factors to consider in determining the make-up (formulation) of an animal ration.
* Objective 4. The student will describe the two systems used in evaluating rations and their definitions with 70% accuracy.
Objective 5. The student will interpret nutritional information from tables with 70% accuracy.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Named and defined the different categories of feeds.
* ___ 2. Named the nutrient groups and identified their functions.
* ___ 3. Listed factors to consider in the make-up (formulation) of an animal ration.

* ___ 4. Described the two systems used in evaluating ration formulations and their definitions.
___ 5. Interpreted nutritional information from tables.

COURSE: Agriculture Production I

Unit 10: Animal Health (3 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List the signs of the healthy animal.
* 2. List the signs of an unhealthy animal.
* 3. State factors to consider in developing a program of preventing ill health in animals.
* 4. State management practices for maintaining animal health.
* 5. List and describe methods for administering medications to animals.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vo-Tech. 1986

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list five signs of a healthy animal.
* Objective 2. The student will list eight signs of an unhealthy animal.
* Objective 3. The student will state four factors to consider in developing a program of preventing ill health in animals.
* Objective 4. The student will state seven management practices for maintaining animal health.
* Objective 5. The student will list and describe four methods for administering medications to animals.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed the signs of the healthy animal.
* ___ 2. Listed the signs of an unhealthy animal.
* ___ 3. Stated factors to consider in developing a program of preventing ill health in animals.
* ___ 4. Stated management practices for maintaining animal health.
* ___ 5. Listed and described methods for administering medications to animals.

COURSE: Agriculture Production I

Unit 11: Parts and Classification of Agricultural Plants (3 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the parts of a plant.
* 2. Describe the functions of the four basic parts of a plant.
* 3. Describe how plants are classified by life cycle.
* 4. Describe the different classes of agricultural plants based upon their use.
5. Describe the differences in monocotyledonous and dicotyledonous plants.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vo-Tech. 1986

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will label the parts of a legume plant with 70% accuracy.
* Objective 2. The student will describe two function of each of the four basic plant parts.
* Objective 3. The student will describe the four major life cycle classes of plants.
* Objective 4. The student will describe the seven different classes of plants based upon their agricultural use with 70% accuracy.
Objective 5. The student will describe the differences in monocot and dicot leaves.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the parts of a plant.
* ___ 2. Described the functions of the four basic parts of a plant.
* ___ 3. Described how plants are classified by life cycle.
* ___ 4. Described the different classes of agricultural plants based upon their use.
___ 5. Described the differences in monocotyledonous and dicotyledonous plants.

COURSE: Agriculture Production I

Unit 12: Reproduction of Plants (3 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Describe the different ways in which plants reproduce.
2. Identify the parts of a complete flower.
* 3. Describe the process by which seeds are produced.
* 4. List the stages in seed germination.
* 5. List the requirements for seed germination and growth.
* 6. List possible causes of poor or no seed germination.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vo-Tech. 1986

Evaluation and Suggested Minimum Performance Standards:

*	Objective 1.	The student will describe the two methods by which plants reproduce under natural conditions.
	Objective 2.	The student will identify the parts of a complete flower on a diagram with 70% accuracy.
*	Objective 3.	The student will describe the process of seed formation with 70% accuracy.
*	Objective 4.	The student will list the five stages of seed germination with 70% accuracy.
*	Objective 5.	The student will list 3 requirements for seed germination and growth.
*	Objective 6.	The student will list 6 possible causes of poor or no seed germination.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Described the different ways in which plants reproduce.
___ 2. Identified the parts of a complete flower.
* ___ 3. Described the process by which seeds are produced.
* ___ 4. Listed the stages in seed germination.
* ___ 5. Listed the requirements for seed germination and growth.
* ___ 6. Listed possible causes of poor or no seed germination.

COURSE: Agriculture Production I

Unit 13: Plant Nutrition (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Name the major plant nutrients that are supplied through the soil and identify their functions.
* 2. List the secondary nutrients that must be present for proper growth.
* 3. List the principles involved in determining the amounts and kinds of fertilizer to use.
* 4. Interpret the analysis of a complete fertilizer.
* 5. Demonstrate the ability to obtain a soil sample for fertility testing.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Patton, Bob. Vocational Agriculture III. Stillwater: Oklahoma Department of Vocational and Technical Education. 1978.

Reeder, Dean. Vocational Agriculture IV. Stillwater: Oklahoma Department of Vocational and Technical Education. 1973.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list the three primary nutrients and identify functions of each.
* Objective 2. The student will list the three secondary nutrients that must be present for plant growth.
* Objective 3. The student will list four factors that influence the amount and kind of fertilizer to be used.
* Objective 4. The student will interpret the N-P-K analysis rating of a complete fertilizer.
* Objective 5. The student will demonstrate the ability to collect a sample of a given soil for fertility testing purposes.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Name the major plant nutrients that are supplied through the soil and identify their functions.

* ___ 2. List the secondary nutrients that must be present for proper growth.

* ___ 3. List the principles involved in determining the amounts and kinds of fertilizer to use.

* ___ 4. Interpret the analysis of a complete fertilizer.

* ___ 5. Demonstrate the ability to obtain a soil sample for fertility testing.

COURSE: Agriculture Production I

Unit 14: Plant Disease and Pest Control (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Name the common groups of plant pests.
* 2. Describe the methods by which plant pests can be controlled.
* 3. Define the term integrated pest management.
* 4. Identify ways in which weeds hinder crop production.
* 5. Identify the ways in which weeds are controlled.
* 6. Describe the different classes of herbicides.
* 7. List the stages in the life cycle of a typical insect in their order of occurrence.
* 8. Identify the ways in which insects can be controlled.
* 9. Describe the different classes of insecticides.
* 10. List the symptoms of plant diseases.
* 11. Name the agents that commonly cause diseases in plants.
* 12 Describe methods by which plant diseases can be controlled.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vo-Tech. 1986

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will name the three common groups of plant pests.
* Objective 2. The student will describe the four general methods for controlling plant pests.
* Objective 3. The student will define the term integrated pest management.
* Objective 4. The student will identify 6 ways in which weeds hinder crop production.
* Objective 5. The student will identify 6 ways by which weeds can be controlled.
* Objective 6. The student will describe the three different classes of herbicides with 70% accuracy.
* Objective 7. The student will name the four stages of the life cycle for most insects.
* Objective 8. The student will identify four methods by which insects can be controlled.

* Objective 9. The student will describe the three different classes of insecticides with 70% accuracy.
* Objective 10. The student will list six symptoms (indications) of plant diseases.
* Objective 11. The student will name and describe four agents that can cause plant diseases.
* Objective 12. The student will describe four methods for controlling plant diseases.

Performance Record: Place a check by each objective that the student achieved.

* ___ 1. Name the common groups of plant pests.
* ___ 2. Describe the methods by which plant pests can be controlled.
* ___ 3. Define the term integrated pest management.
* ___ 4. Identify ways in which weeds hinder crop production.
* ___ 5. Identify the ways in which weeds are controlled.
* ___ 6. Describe the different classes of herbicides.
* ___ 7. List the stages in the life cycle of a typical insect in their order of occurrence.
* ___ 8. Identify the ways in which insects can be controlled.
* ___ 9. Describe the different classes of insecticides.
* ___10. List the symptoms of plant diseases.
* ___11. Name the agents that commonly cause diseases in plants.
* ___12. Describe methods by which plant diseases can be controlled.

COURSE: Agriculture Production I

Unit 15: Computer Applications (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Name and describe common uses of computers in agriculture/agribusiness operations.
2. State the capabilities of a computer.
3. State the limitations of a computer.
4. List and describe the major parts of a computer.
5. State precautions to follow in using a computer.
6. Identify the parts of a diskette and their purpose or function.
7. Name precautions to follow in using diskettes.
8. Identify the major parts of a microcomputer.
9. State the purpose of the special control keys on a microcomputer.
10. Demonstrate the ability to:
* a. Format a diskette.
* b. Copy a diskette.
c. Calculate a loan amortization table.
d. Calculate a least cost feed ration.
e. Calculate a home budget.
f. Calculate a car trade analysis.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): McCully, James S. Using Microcomputers in Agriculture. Mississippi State: Research and Curriculum Unit. 1984.

"Computer Application Skills". Basic Vocational Education - Section I: Introduction to Occupational Skills. Mississippi State: Research and Curriculum Unit. 1987.

(Note:Programs for performing the abilities indicated in Objectives 10c-10f can be obtained from MCES Computer Applications.)

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will name and describe six uses of computers in agriculture/agribusiness operations.

Objective 2. The student will state four capabilities of a computer.

Objective 3. The student will state three limitations of a computer.

Objective 4. The student will identify the four major component groups of a computer.

Objective 5. The student will state three precautions to follow in using a computer.

Objective 6. The student will identify the four major parts of a diskette and describe their purpose or function with 70% accuracy.

Objective 7. The student will name six precautions to follow in handling and using diskettes.

Objective 8. The student will identify the major parts of a microcomputer with 70% accuracy. (Note: Specific parts to be identified will depend upon the brand and type of computer used by the local program.)

Objective 9. The student will state the purpose of the special control keys on a microcomputer keyboard with 70% accuracy. (Note: The specific keys to be identified will depend upon the brand and type of computer used by the local program.)

Objective 10. The student will demonstrate the procedure for:

* a. Formatting a diskette.

* b. Copying a diskette.

c. Calculating a loan amortization table.

d. Calculating a least cost feed ration.

e. Calculating a home budget.

f. Calculating a car trade analysis.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Named and described common uses of computers in agriculture/agribusiness operations.

___ 2. Stated the capabilities of a computer.

___ 3. Stated the limitations of a computer.

___ 4. Listed and described the major parts of a computer.

___ 5. Stated precautions to follow in using a computer.

___ 6. Identified the parts of a diskette and their purpose or function.

___ 7. Named precautions to follow in using diskettes.

___ 8. Identified the major parts of a microcomputer.

___ 9. Stated the purpose of the special control keys on a microcomputer.

10. Demonstrated the ability to:

* ___ a. Format a diskette.

* ___ b. Copy a diskette.

___ c. Calculate a loan amortization table.
___ d. Calculate a least cost feed ration.
___ e. Calculate a home budget.
___ f. Calculate a car trade analysis.

COURSE: Agriculture Production I

Unit 16: Agricultural Mechanics Orientation and Safety (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List reasons for maintaining a clean and orderly shop
2. List areas of responsibility to consider in maintaining a clean and orderly shop.
* 3. List general safety precautions for shop work.
* 4. List general safety rules pertaining to power tools.
* 5. List general guidelines for proper care of power tools.
* 6. List rules for safe use of a bench grinder.
* 7. List rules for safe use of a portable grinder.
* 8. List rules for safe use of a drill press.
* 9. List rules for safe use of a portable circular saw.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vo-Tech. 1986

Patton, Bob and Harp, Keith. Vocational Agriculture I. Stillwater: Oklahoma Department of Vocational and Technical Education. 1984.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list two reasons for maintaining a clean and orderly shop.
Objective 2. The student will list four areas of responsibility to consider in maintaining a clean and orderly shop.
* Objective 3. The student will list 10 general safety precautions for shop work.
* Objective 4. The student will list 14 general safety rules relating to the use of power tools.
* Objective 5. The student will list five general guidelines for proper care of power tools.
* Objective 6. The student will list 10 rules for safe use of the bench grinder.
* Objective 7. The student will list nine rules for the safe use of the portable grinder.

* Objective 8. The student will list nine rules for safe use of the drill press.

* Objective 9. The student will list nine rules for safe use of the portable circular saw.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed reasons for maintaining a clean and orderly shop.
___ 2. Listed areas of responsibility to consider in maintaining a clean and orderly shop.
* ___ 3. Listed general safety precautions for shop work.
* ___ 4. Listed general safety rules pertaining to power tools.
* ___ 5. Listed general guidelines for proper care of power tools.
* ___ 6. Listed rules for safe use of a bench grinder.
* ___ 7. Listed rules for safe use of a portable grinder.
* ___ 8. Listed rules for safe use of a drill press.
* ___ 9. Listed rules for safe use of a portable circular saw.

COURSE: Agriculture Production I

Unit 17: Arc Welding (12 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Name the different types of arc welding machines.
* 2. Identify the different types of tools and supplies used in arc welding.
* 3. Name the common types and sizes of electrodes used in agricultural repair.
4. State the meaning of the characters used in the AWS classification code.
5. State the purposes of flux.
* 6. Name the methods for establishing an arc.
* 7. List the characteristics of proper arc length.
* 8. Name the parts of the welding process.
* 9. Identify the different welding positions.
* 10. Identify the different kinds of welds.
* 11. Identify the different types of weld joints.
* 12. Describe the effects of raising and lowering the current on arc welding machines.
* 13. Identify safety precautions in arc welding.
14. Demonstrate the ability to:
* a. start, stop and run a bead.
* b. construct a pad.
* c. construct a butt weld.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Patton, Bob and Harp, Keith. Vocational Agriculture I. Stillwater: Oklahoma Department of Vocational and Technical Education. 1984.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will name the five different types of arc welding machines.
* Objective 2. The student will identify nine tools and supplies used in arc welding.
* Objective 3. The student will name three different types of electrodes and two common sizes of electrodes.

Objective 4. The student will state the meanings of the characters in the AWS classification system for electrodes with 70% accuracy.

Objective 5. The student will state four purposes of flux.

* Objective 6. The student will name two methods for striking an arc.

* Objective 7. The student will list two characteristics of a proper arc length.

* Objective 8. The student will name the parts of the arc welding process.

* Objective 9. The student will identify the four basic welding positions.

* Objective 10. The student will identify the three kinds of welds.

* Objective 11. The student will identify four different types of weld joints.

* Objective 12. The student will describe an effect of raising the current setting and an effect of lowering the current setting on a welder.

* Objective 13. The student will list nine safety precautions to be followed in arc welding.

Objective 14. The student will demonstrate the ability to:

* a. Start, stop and run a bead.

* b. Construct a pad.

* c. Construct a butt weld.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Named the different types of arc welding machines.

* ___ 2. Identified the different types of tools and supplies used in arc welding.

* ___ 3. Named the common types and sizes of electrodes used in agricultural repair.

___ 4. Stated the meaning of the characters used in the AWS classification code.

___ 5. Stated the purposes of flux.

* ___ 6. Named the methods for establishing an arc.

* ___ 7. Listed the characteristics of proper arc length.

* ___ 8. Named the parts of the welding process.

* ___ 9. Identified the different welding positions.

* ___10. Identified the different kinds of welds.

* ___11. Identified the different types of weld joints.

* ___12. Described the effects of raising and lowering the current on arc welding machines.

* ___13. Identified safety precautions in arc welding.

14. Demonstrated the ability to:

* ___ a. start, stop and run a bead.

* ___ b. construct a pad.

* ___ c. construct a butt weld.

COURSE: Agriculture Production I

Unit 18: Oxyacetylene Cutting (8 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the parts of an oxyacetylene cutting unit.
2. Identify the parts of a regulator.
* 3. List safety precautions in handling equipment.
* 4. List the causes of backfires.
* 5. List steps to follow in case of a flashback.
6. Describe the characteristics of the different types of flames.
7. Demonstrate the ability to:
* a. Set up, test for leaks and depressurize equipment.
* b. Turn on, light, adjust and turn off cutting equipment.
* c. Make a 90 degree cut on mild steel and restart the cut.
* d. Make a flame bevel cut on mild steel plate.
* e. Cut a hole in mild steel.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Patton, Bob and Harp, Keith. Vocational Agriculture I. Stillwater: Oklahoma Department of Vocational and Technical Education. 1984.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. Identify the 13 parts of an oxyacetylene cutting unit with 85% accuracy.
Objective 2. Identify the five parts of a regulator.
* Objective 3. List 15 safety precautions to be followed in handling and using oxyacetylene equipment.
* Objective 4. Name four possible causes of a backfire.
* Objective 5. List the eight steps to follow in case of a flashback.
Objective 6. Describe the characteristics of a carburizing, neutral, and oxidizing flame.
Objective 7. Demonstrate the ability to:
* a. Set up, test for leaks, and depressurize equipment.
* b. Turn on, light, adjust, and turn off cutting equipment.

* c. Make a 90 degree cut on mild steel and restart the cut.
* d. Make a flame bevel cut on mild steel plate.
* e. Cut a hole in mild steel.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the parts of an oxyacetylene cutting unit.
___ 2. Identified the parts of a regulator.
* ___ 3. Listed safety precautions in handling equipment.
* ___ 4. Listed the causes of backfires.
* ___ 5. Listed steps to follow in case of a flashback.
___ 6. Described the characteristics of the different types of flames.
7. Demonstrated the ability to:
* ___ a. Set up, test for leaks and depressurize equipment.
* ___ b. Turn on, light, adjust and turn off cutting equipment.
* ___ c. Make a 90 degree cut on mild steel and restart the cut.
* ___ d. Make a flame bevel cut on mild steel plate.
* ___ e. Cut a hole in mild steel.

COURSE: Agriculture Production I

Unit 19: Basic Electricity (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Describe the relationship between volts, amps and watts.
* 2. List causes of electrical accidents.
* 3. State general precautions to be followed in working with electrical equipment and electricity.
4. Describe the flow of electricity in a circuit.
* 5. Identify tools used in electrical work.
6. Identify devices used in electrical work.
7. Identify safety devices used in electrical circuits.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Cooper, Elmer L. Agricultural Mechanics: Fundamentals and Applications. Albany, NY: Delmar Publications. 1987

Patton, Bob. Vocational Agriculture III. Stillwater: Oklahoma Department of Vocational and Technical Education. 1978.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will describe the relationship between volts, amps, and watts with 70% accuracy.
* Objective 2. The student will list four causes of electrical accidents.
* Objective 3. The student will state 15 general precautions to follow in working with electrical equipment and electricity.
Objective 4. The student will describe the flow of electricity within a circuit with 70% accuracy.
* Objective 5. The student will identify 14 common tools used in electrical wiring.
Objective 6. The student will identify 15 common devices used in electrical wiring.
Objective 7. The student will identify seven common safety devices used to protect circuits.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Described the relationship between volts, amps and watts.
* ___ 2. Listed causes of electrical accidents.
* ___ 3. Stated general precautions to be followed in working with electrical equipment and electricity.
___ 4. Described the flow of electricity in a circuit.
* ___ 5. Identified tools used in electrical work.
___ 6. Identified devices used in electrical work.
___ 7. Identified safety devices used in electrical circuits.

COURSE: Agriculture Production I

Unit 20: Small Engines (12 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Identify the major parts of a small engine.
2. Identify tools used in small engine repair.
* 3. List in order the four strokes of a four cycle small engine.
* 4. State differences in two and four stroke cycle engines.
* 5. Demonstrate the ability to disassemble, inspect, and reassemble a four stroke cycle engine.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Patton, Bob. Vocational Agriculture III. Stillwater: Oklahoma Department of Vocational and Technical Education. 1978.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will identify 80% of the parts of a small engine.
Objective 2. The student will identify nine special tools used in small engine repair.
* Objective 3. The student will list in order the four strokes of a four cycle engine.
* Objective 4. The student will name three differences between a two stroke and four stroke cycle engine.
* Objective 5. The student will demonstrate the ability to disassemble, inspect, and reassemble a four stroke cycle engine.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Identified the major parts of a small engine.
___ 2. Identified tools used in small engine repair.
* ___ 3. Listed in order the four strokes of a four cycle small engine.
* ___ 4. Stated differences in two and four stroke cycle engines.
* ___ 5. Demonstrated the ability to disassemble, inspect, and reassemble a four stroke cycle engine.

COURSE: Agriculture Production I

Unit 21: Agricultural Structures (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List safety precautions to follow in using stationary power tools.
2. Identify the parts of a tilting arbor table saw.
* 3. List safety rules to be followed in using the tilting arbor table saw.
4. Identify the parts of a radial arm saw.
* 5. List safety rules to follow in using the radial arm saw.
6. Demonstrate the ability to:
* a. Crosscut a piece of wood using the radial arm saw.
* b. Rip a piece of wood using the tilting arbor table saw.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Cooper, Elmer L. Agricultural Mechanics: Fundamentals and Applications. Albany, NY: Delmar Publications. 1987

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list 10 general safety precautions to be followed when working with power woodworking equipment.
Objective 2. The student will identify the 18 parts of the tilting arbor table saw.
* Objective 3. The student will list the steps to be followed when cutting with the tilting arbor table saw.
Objective 4. The student will identify the 14 parts of the radial arm saw.
* Objective 5. The student will list the steps to be followed when crosscutting a board with a radial arm saw.
Objective 6. The student will demonstrate the ability to:
* a. crosscut a piece of wood using the radial arm saw.
* b. rip a piece of wood using the tilting arbor table saw.

Performance Record: Place a check be each objective that the student achieved:

* ___ 1. Listed general safety precautions to follow in using stationary power tools.
___ 2. Identified the parts of a tilting arbor table saw.
* ___ 3. Listed procedures to be followed in using the tilting arbor table saw.
___ 4. Identified the parts of a radial arm saw.
* ___ 5. Listed safety rules to follow in using the radial arm saw.
6. Demonstrated the ability to:
* ___ a. Crosscut a piece of wood using the radial arm saw.
* ___ b. Rip a piece of wood using the tilting arbor table saw.

AGRICULTURE PRODUCTION II
COURSE GUIDE

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AGRICULTURE PRODUCTION II
COURSE GUIDE

Unit No.	Title
1	Agricultural Business Organization
2	Records and Record Keeping
3	Taxes, Insurance, and Business Law
4	Agricultural Marketing
5	Agricultural Credit
6	Soil Conservation Practices
7	Legal Description of Land
8	Surveying
9	Agricultural Pesticide Safety
10	Arc Welding
11	Oxyacetylene Welding and Brazing
12	Agricultural Construction
13	Restoring and Refinishing Farm Equipment
14	Electrical Wiring
15	Agricultural Equipment Operation and Maintenance

COURSE: Agriculture Production II

Unit 1: Agricultural Business Organization (4 days)

Objectives: Upon completion of this unit, the student should be able to:

1. List the established principles of business organizations.
* 2. Name the different types of agricultural business organizations.
* 3. State advantages and disadvantages of sole proprietorship.
* 4. State principles of a partnership agreement.
5. State an advantage and a disadvantage of a partnership agreement.
6. Describe the differences in a partnership and a limited partnership.
7. Name the characteristics of a corporation.
8. State advantages and disadvantages of the corporation type of organization.
9. State the difference in a cooperative and a corporation.
* 10. List characteristics of a cooperative.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Stewart, Jim and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will list four established principles of business organization.
* Objective 2. The student will name the three major types of agricultural business organizations.
* Objective 3. The student will state four advantages and four disadvantages of the sole proprietorship type of organization.
* Objective 4. The student will state three principles of a partnership agreement.
Objective 5. The student will state one advantage and one disadvantage of a partnership.
Objective 6. The student will describe two differences in a partnership and a limited partnership.
Objective 7. The student will name three characteristics of a corporation.

Objective 8. The student will state four advantages and four disadvantages of the corporation type of organization.

Objective 9. The student will state the difference in a corporation and a cooperative.

* Objective 10. The student will list four characteristics of a cooperative.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Listed the established principles of business organizations.

* ___ 2. Named the different types of agricultural business organizations.

* ___ 3. Stated advantages and disadvantages of sole proprietorship.

* ___ 4. Stated principles of a partnership agreement.

___ 5. Stated an advantage and a disadvantage of a partnership agreement.

___ 6. Described the differences in a partnership and a limited partnership.

___ 7. Named the characteristics of a corporation.

___ 8. Stated advantages and disadvantages of the corporation type of organization.

___ 9. Stated the difference in a cooperative and a corporation.

* ___10. Listed characteristics of a cooperative.

COURSE: Agriculture Production II

Unit 2: Records and Record Keeping (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Name reasons why recordkeeping is essential.
* 2. Describe the major types of records kept for business purposes.
* 3. Describe the methods for accounting.
* 4. Describe the methods for reporting income and expenses.
* 5. List the steps for keeping records.
* 6. Name five different classes of items that should be included in a beginning inventory and one specific example of each class.
* 7. Describe methods for placing a value on items in the inventory.
* 8. Identify the different categories of business income.
* 9. Identify the different categories of business expenses.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Stewart, Jim and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. Name two reasons why recordkeeping is essential.
* Objective 2. Describe the four records summaries that are used in agricultural businesses.
* Objective 3. Describe the differences in the double-entry and single-entry accounting methods.
* Objective 4. Describe the differences in the cash and accrual methods for reporting income and expenses.
* Objective 5. List the six steps in the record keeping process.
* Objective 6. Name five different classes of items that should be included in the beginning inventory and one specific example of each class.
* Objective 7. Describe the differences in the cash value and book value methods for placing a value on items in the inventory.
* Objective 8. Identify nine different categories of agricultural business income.
* Objective 9. Identify 12 different categories of agricultural business expense.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Named reasons why recordkeeping is essential.
* ___ 2. Described the major types of records kept for business purposes.
* ___ 3. Described the methods for accounting.
* ___ 4. Described the methods for reporting income and expenses.
* ___ 5. Listed the steps for keeping records.
* ___ 6. Named five different classes of items that should be included in a beginning inventory and one specific example of each class.
* ___ 7. Described methods for placing a value on items in the inventory.
* ___ 8. Identified the different categories of business income.
* ___ 9. Identified the different categories of business expenses.

COURSE: Agriculture Production II

Unit 3: Taxes, Insurance and Business Law (8 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify items that are needed to complete an income tax worksheet.
* 2. State the purpose of an income tax management program.
* 3. Name strategies that can increase taxable income levels.
* 4. Name strategies that can decrease taxable income levels.
* 5. Describe the coverage provided by the common kinds of insurance.
* 6. List points to remember when buying insurance.
* 7. Name the essential elements of a contract.

* Indicates essential/core objective.

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Stewart, Jim and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. Identify 14 items that are needed to complete an income tax worksheet.
* Objective 2. State the purpose of an income tax management plan.
* Objective 3. Name four strategies that can be used to increase taxable income levels.
* Objective 4. Name four strategies that can be used to decrease taxable income.
* Objective 5. Describe the coverage provided by the four major types of insurance.
* Objective 6. List three points to remember when buying insurance.
* Objective 7. Name three essential elements of a contract.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified items that are needed to complete an income tax worksheet.
* ___ 2. Stated the purpose of an income tax management program.
* ___ 3. Named strategies that can increase taxable income levels.
* ___ 4. Named strategies that can decrease taxable income levels.
* ___ 5. Described the coverage provided by the common kinds of insurance.

* ___ 6. Listed points to remember when buying insurance.
* ___ 7. Named the essential elements of a contract.

COURSE: Agriculture Production II

Unit 4: Agricultural Marketing (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Name the factors which determine the price of a product.
* 2. State the law of demand.
* 3. Name factors that can cause a shift in demand.
* 4. State the law of supply.
* 5. Name factors that can cause a shift in supply.
6. Describe the major types of market structures.
7. State marketing strategies for agricultural business.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Stewart, Jim and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. Name the two primary factors that determine the price of a product.
* Objective 2. State the law of demand.
* Objective 3. Name three factors that could cause a shift in demand.
* Objective 4. State the law of supply.
* Objective 5. Name two factors that could cause a shift in supply.
Objective 6. Describe a distinguishing characteristic of each of the four major market structures.
Objective 7. State four common marketing strategies.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Named the factors which determine the price of a product.
* ___ 2. Stated the law of demand.
* ___ 3. Named factors that can cause a shift in demand.
* ___ 4. Stated the law of supply.
* ___ 5. Named factors that can cause a shift in supply.
___ 6. Described the major types of market structures.
___ 7. Stated marketing strategies for agricultural business.

COURSE: Agriculture Production II

Unit 5: Agricultural Credit (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Name the advantages of using credit.
* 2. Name the disadvantages of using credit.
* 3. Distinguish between the types of credit.
* 4. List guidelines for building and keeping a good credit standing.
* 5. List distinguishing characteristics of the different types of credit agreements.
* 6. Name the different types of loans made by banks or other lending institutions.
* 7. Name sources of farm credit.
* 8. Name factors that determine the cost of credit.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vocational and Technical Education. 1986.

Evaluation and Suggested Minimum Performance Standards:

*	Objective 1.	Name four advantages of using credit.
*	Objective 2.	Name four disadvantages of using credit.
*	Objective 3.	State the difference in production credit and consumption credit.
*	Objective 4.	List six guidelines for building and keeping a good credit record.
*	Objective 5.	List a distinguishing characteristic of each of the four major types of credit agreements.
*	Objective 6.	List distinguishing characteristics of the following types of loans: (a) collateral loan, (b) secured personal loan, (c) unsecured personal loan, (d) passbook loan, (e) credit card loan, (f) mortgage loan, (g) FmHA loan.
*	Objective 7.	Name six different sources of farm credit.
*	Objective 8.	Name three factors that determine the cost of credit.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Named the advantages of using credit.
* ___ 2. Named the disadvantages of using credit.
* ___ 3. Distinguished between the types of credit.
* ___ 4. Listed guidelines for building and keeping a good credit standing.
* ___ 5. Listed distinguishing characteristics of the different types of credit agreements.
* ___ 6. Named the different types of loans made by banks or other lending institutions.
* ___ 7. Named sources of farm credit.
* ___ 8. Named factors that determine the cost of credit.

COURSE: Agriculture Production II

Unit 6: Soil Conservation Practices (6 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List the reasons why soil is important.
* 2. List the factors which affect soil formation.
* 3. Identify the two types of erosion.
* 4. Identify the three types of water erosion.
* 5. List management practices that aid in erosion control.
* 6. List reasons for determining land capability class.
* 7. List factors that determine a land capability class.
* 8. Name the land capability classes and their uses.
* 9. List the type of treatments that can be applied to land-capability classes.
* 10. List soil conserving vegetative practices.
* 11. List soil conserving mechanical practices.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vocational and Technical Education. 1986.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list three reasons why soil is important.
* Objective 2. The student will list four factors which affect soil formation.
* Objective 3. The student will name the two types of erosion.
* Objective 4. The student will describe the characteristics of the three types of water erosion.
* Objective 5. The student will list four management practices that aid in erosion control.
* Objective 6. The student will list three reasons for determining land capability class.
* Objective 7. The student will list four factors that determine a land capability class.
* Objective 8. The student will name a suitable use for each land capability class.

* Objective 9. The student will name the three types of soil conservation treatments that can be applied to a land capability class.
* Objective 10. The student will name five vegetative soil conservation practices.
* Objective 11. The student will name three mechanical soil conservation practices.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed the reasons why soil is important.
* ___ 2. Listed the factors which affect soil formation.
* ___ 3. Identified the two types of erosion.
* ___ 4. Identified the three types of water erosion.
* ___ 5. Listed management practices that aid in erosion control.
* ___ 6. Listed reasons for determining land capability class.
* ___ 7. Listed factors that determine a land capability class.
* ___ 8. Named the land capability classes and their uses.
* ___ 9. Listed the type of treatments that can be applied to land-capability classes.
* ___ 10. Listed soil conserving vegetative practices.
* ___ 11. Listed soil conserving mechanical practices.

COURSE: Agriculture Production II

Unit 7: Legal Description of Land (3 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Describe the system used to establish the legal description of land in Mississippi.
* 2. Interpret the legal description of a tract of land.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Class and home assignments

Suggested Resources:

Primary Resource(s): McCully, James S. "Legal Description of Land." Lesson Plans for Teaching Basic Vocational Agriculture - Section III - Introduction to Soil Management and Classification. Mississippi State: Research and Curriculum Unit. 1983.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. List in order the seven steps in establishing the legal description of a tract of land.
* Objective 2. Interpret the legal description of a tract of land.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Describe the system used to establish the legal description of land in Mississippi.
* ___ 2. Interpret the legal description of a tract of land.

COURSE: Agriculture Production II

Unit 8: Surveying (12 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Identify the parts of a farm level.
2. Identify the types of self-reading rods and describe how each one is read.
3. Identify the parts of a rod.
4. State common errors that contribute to incorrect measurement.
5. State rules to follow in providing care of the level.
6. Identify hand motions used by the instrument operator to guide the target holder.
7. Name things to consider and practice in order to have a good set of records in the field notebook.
8. Calculate problems and record the results in a field notebook.
9. Demonstrate the ability to:
   a. Set up and adjust the farm level.
   b. Complete a differential leveling problem.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Patton, Bob. Vocational Agriculture III. Stillwater: Oklahoma State Department of Vocational and Technical Education. 1978.

Evaluation and Suggested Minimum Performance Standards:

Objective 1.	The student will identify nine parts of the farm level.
Objective 2.	The student will identify a characteristic of each of the two types of self reading rods and describe how each is read.
Objective 3.	The student will identify the four parts of a rod and the use of each part.
Objective 4.	The student will state three common errors that can contribute to an incorrect measurement.
Objective 5.	The student will state five rules for caring for the farm level.
Objective 6.	The student will identify six hand motions used by the instrument operator to guide the target holder.
Objective 7.	The student will name five things to consider and practice in keeping field notes.
Objective 8.	The student will calculate problems and record the results in a field notebook with 70% accuracy.

Objective 9. The student will demonstrate the ability to:
a. Set up and adjust the farm level.
b. Complete a differential leveling problem.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Identified the parts of a farm level.
___ 2. Identified the types of self-reading rods and describe how each one is read.
___ 3. Identified the parts of a rod.
___ 4. Stated common errors that contribute to incorrect measurement.
___ 5. Stated rules to follow in providing care of the level.
___ 6. Identified hand motions used by the instrument operator to guide the target holder.
___ 7. Named things to consider and practice in order to have a good set of records in the field notebook.
___ 8. Calculated problems and record the results in a field notebook.
9. Demonstrated the ability to:
___ a. Set up and adjust the farm level.
___ b. Complete a differential leveling problem.

COURSE: Agriculture Production II

Unit 9: Agricultural Pesticide Safety (7 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Describe characteristics of agricultural pesticides.
* 2. List factors to consider in selecting a pesticide for a specific pest problem.
* 3. Identify personal safety devices for handling and applying pesticides.
* 4. Describe treatments for the different types of pesticide exposure.
* 5. List factors to consider in storing and disposing of pesticides.
* 6. Identify the different types of pesticide formulations.
* 7. Described the different methods of pesticide application.
* 8. Interpret pesticide label information.
* 9. Calculate pesticide mixture and costs.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Class and home assignments

Suggested Resources:

Primary Resource(s): Colvin, Thomas; and Turner, J. Howard. Applying Pesticides - Management, Application, Safety. Athens, GA: AAVIM. 1980.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. Describe four characterisitics of a pesticide that should be considered before using it.
* Objective 2. List four factors that should be considered in selecting a pesticide for a specific pest problem.
* Objective 3. Identify six personal protection devices that should be used when handling pesticides.
* Objective 4. Describe the basic first aid treatment for exposure to a pesticide that has gotten in the eyes or on the skin, or been swallowed or inhaled.
* Objective 5. List four factors that should be considered in storing and disposing of pesticides.
* Objective 6. Identified four different liguid formulations and four different dry formulations of pesticides.
* Objective 7. Describe a characteristic of each of the five types of pesticide application methods.

* Objective 8. Interpret a pesticide label by completing an assignment sheet with 80% accuracy.
* Objective 9. Calculate a pesticide mixture and its cost by completing an assignment sheet with 80% accuracy.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Deescribed characteristics of agricultural pesticides.
* ___ 2. Listed factors to consider in selecting a pesticide for a specfic pest problem.
* ___ 3. Identified personal safety devices for handling and applying pesticides.
* ___ 4. Described treatments for the different types of pesticide exposure.
* ___ 5. Listed factors to consider in storing and disposing of pesticides.
* ___ 6. Identified the different types of pesticide formulations.
* ___ 7. Described the different methods of pesticide application.
* ___ 8. Interpreted pesticide label information.
* ___ 9. Calculated pesticide mixture and costs.

COURSE: Agriculture Production II

Unit 10: Arc Welding (15 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify abbreviations associated with position arc welding.
* 2. List the parts of a plate joint weld.
* 3. List the factors that determine a good weld.
* 4. List the factors that determine the proper setting for a welding machine.
* 5. Identify common welding problems and their descriptions.
6. Identify causes of improperly formed beads.
* 7. List techniques used in making multiple passes.
* 8. Describe personal protection methods from arc welding hazards.
9. Demonstrate the ability to:
* a. Make a single-v-groove butt weld in the horizonal position.
* b. Make a single-v-groove butt weld in the vertical up position.
* c. Make a single v-groove butt weld in the overhead position.
* d. Make a T-joint fillet weld in the vertical up position.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vocational and Technical Education. 1986.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify four abbreviations commonly used in position shielded arc welding.
* Objective 2. The student will identify four parts of a plate joint weld.
* Objective 3. The student will list three factors that determine a good weld.
* Objective 4. The student will list five factors that determine the proper setting for a welding machine.
* Objective 5. The student will identify and describe five common welding problems.
Objective 6. The student will identify four causes of improperly formed beads.

* Objective 7. The student will list the two techniques used in making multiple passes.

* Objective 8. The student will list five possible hazards associated with arc welding and state one method of protection for each hazard.

Objective 9. The student will demonstrate the ability to:

* a. make a single-v-groove butt weld in the horizonal position.

* b. make a single-v-groove butt weld in the vertical up position.

* c. make a single-v-groove butt weld in the overhead position.

* d. make a T-joint fillet weld in the vertical up position.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified abbreviations associated with position arc welding.

* ___ 2. Listed the parts of a plate joint weld.

* ___ 3. Listed the factors that determine a good weld.

* ___ 4. Listed the factors that determine the proper setting for a welding machine.

* ___ 5. Identified common welding problems and their descriptions.

___ 6. Identified causes of improperly formed beads.

* ___ 7. Listed techniques used in making multiple passes.

* ___ 8. Described personal protection methods from arc welding hazards.

9. Demonstrated the ability to:

* ___ a. Make a single-v-groove butt weld in the horizonal position.

* ___ b. Make a single-v-groove butt weld in the vertical up position.

* ___ c. Make a single v-groove butt weld in the overhead position.

* ___ d. Make a T-joint fillet weld in the vertical up position.

COURSE: Agriculture Production II

Unit 11: Oxyacetylene Welding and Brazing (8 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the characteristics of the different types of welding and brazing flames.
* 2. Define oxyacetylene welding and oxyacetylene brazing.
* 3. List properties of a good weld.
* 4. List factors that determine a good weld.
* 5. List factors to consider in selecting the proper welding tip.
* 6. List factors to consider in selecting the proper welding rod.
7. List the advantages of brazing.
8. List the characteristics of a good braze.
* 9. List factors that determine a good braze.
10. Demonstrate the ability to:
* a. Turn on, light, turn off, and depressurize a welding torch.
* b. Lay a bead without a filler rod.
* c. Construct a corner weld without a filler rod.
* d. Lay a bead with a filler rod.
* e. Weld a butt joint with a filler rod.
* f. Braze a butt joint.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vocational and Technical Education. 1986.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. State the characteristics of the three different flames used in welding and brazing.
* Objective 2. State the definitions of oxyacetylene welding and oxyacetylene brazing.
* Objective 3. List four properties of a good weld.
* Objective 4. List three factors that determine a good weld.
* Objective 5. List the two factors that are used in selecting a welding tip.
* Objective 6. List two factors that should be considered in selecting a welding rod.
Objective 7. List four advantages of brazing.

Objective 8. Name three characteristics of a good braze.
* Objective 9. List four factors that determine a good braze.
Objective 10. Demonstrate the ability to:
* a. Turn on, light, turn off, and depressurize a welding torch.
* b. Lay a bead without a filler rod.
* c. Construct a corner weld without a filler rod.
* d. Lay a bead with a filler rod.
* e. Weld a butt joint with a filler rod.
* f. Braze a butt joint.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the characteristics of the different types of welding and brazing flames.
* ___ 2. Defined oxyacetylene welding and oxyacetylene brazing.
* ___ 3. Listed properties of a good weld.
* ___ 4. Listed factors that determine a good weld.
* ___ 5. Listed factors to consider in selecting the proper welding tip.
* ___ 6. Listed factors to consider in selecting the proper welding rod.
___ 7. Listed the advantages of brazing.
___ 8. Listed the characteristics of a good braze.
* ___ 9. Listed factors that determine a good braze.
10. Demonstrated the ability to:
* ___ a. Turn on, light, turn off, and depressurize a welding torch.
* ___ b. Lay a bead without a filler rod.
* ___ c. Construct a corner weld without a filler rod.
* ___ d. Lay a bead with a filler rod.
* ___ e. Weld a butt joint with a filler rod.
* ___ f. Braze a butt joint.

COURSE: Agriculture Production II

Unit 12: Agricultural Construction (10 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Distinguish between a cutting bill of material and a shopping bill of material.
2. State the facts that you need to know about each item on a cutting bill of material.
* 3. State the facts that you need to know about each item on a shopping bill of material.
* 4. Identify the parts of a framing square.
5. Identify the tables on framing square and name one use of each.
* 6. Identify the different types of roofs.
* 7. Identify the different types of rafters.
* 8. Identify terms used in measuring rafters.
9. Name three methods for determining the length of rafters.
* 10. Demonstrate the ability to layout and cut common rafters.
* 11. List factors to consider in planning a farm building.
* 12. Identify the common building materials used in farm construction.
* 13. List the causes of building failures.
14. List the types of foundations and wall supports.
15. List factors to consider in selecting roofing materials.
16. Determine the cost of a farm building.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vocational and Technical Education. 1986.

Reeder, Dean. Vocational Agriculture IV. Stillwater: Oklahoma State Department of Vocational and Technical Education. 1974.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will state the difference in a cutting bill of material and a shopping bill of material.
Objective 2. The student will name three facts that must be known about each item on the cutting bill of material.

* Objective 3. The student will name three facts that must be known about each item on the shopping bill of material.

* Objective 4. The student will identify the three parts of a framing square.

* Objective 5. The student will name the four tables found on a framing square and one use for each table.

* Objective 6. The student will identify four different types of roofs.

* Objective 7. The student will identify four different terms used in measuring rafters.

* Objective 8. The student will identify three common types of rafters.

Objective 9. The student will name three methods for determining the length of a common rafter.

* Objective 10. The student will demonstrate the ability to layout and cut a common rafter using a framing square.

* Objective 11. The student will list four factors that must be considered in planning a farm building.

* Objective 12. The student will identify seven common materials used in agricultural buildings.

* Objective 13. The student will list three common causes of building failure.

Objective 14. The student will identify four common types of foundations and wall supports.

Objective 15. The student will list seven factors to consider in selecting roofing materials.

Objective 16. The student will determine the cost of a building by completing an assignment sheet with 70% accuracy.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Distinguished between a cutting bill of material and a shopping bill of material.

___ 2. Stated the facts that you need to know about each item on a cutting bill of material.

* ___ 3. Stated the facts that you need to know about each item on a shopping bill of material.

* ___ 4. Identified the parts of a framing square.

___ 5. Identified the tables on framing square and name one use of each.

* ___ 6. Identified the different types of roofs.

* ___ 7. Identified the different types of rafters.

* ___ 8. Identified terms used in measuring rafters.

___ 9. Named three methods for determining the length of rafters.

* ___ 10. Demonstrated the ability to layout and cut common rafters.

* ___ 11. Listed factors to consider in planning a farm building.

* ___ 12. Identified the common building materials used in farm construction.

* ___ 13. Listed the causes of building failures.

* ___ 14. Listed the types of foundations and wall supports.

___ 15. Listed factors to consider in selecting roofing materials.
___ 16. Determined the cost of a farm building.

COURSE: Agriculture Production II

Unit 13: Restoring and Refinishing Farm Equipment (15 days)

Objectives: Upon completion of this unit, the student should be able to:

1. List the steps in preparing new metal for painting.
2. List the steps in preparing old metal for painting.
3. Describe the procedure for masking equipment before painting.
4. Identify the parts of a paint spray gun.
5. List basic procedures for adjusting a paint spray gun.
6. Describe the basic procedure for operating a paint spray gun.
7. Demonstrate the ability to:

* a. Prepare paint for spraying.
* b. Operate a paint spray gun.
* c. Clean a paint spray gun.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resource(s):

Primary Resources: Cooper, Elmer. Agricultural Mechanics: Fundamentals and Applications. Albany: Delmar. 1987.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will list four steps in preparing new metal for painting.

Objective 2. The student will list three steps in preparing old metal for painting.

Objective 3. The student will describe the procedure for masking equipment for painting.

Objective 4. The student will identify six parts of a paint spray gun.

Objective 5. The student will describe the basic procedure for adjusting a paint spray gun.

Objective 6. The student will describe the procedure for operating a paint spray gun.

Objective 7. The student will demonstrate the ability to:

* a. Prepare paint for spraying.
* b. Operate a paint spray gun.
* c. Clean a paint spray gun.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Listed the steps in preparing new metal for painting.
___ 2. Listed the steps in preparing old metal for painting.
___ 3. Described the procedure for masking equipment before painting.
___ 4. Identified the parts of a paint spray gun.
___ 5. Listed basic procedures for adjusting a paint spray gun.
___ 6. Described the basic procedure for operating a paint spray gun.
7. Demonstrated the ability to:
* ___ a. Prepare paint for spraying.
* ___ b. Operate a paint spray gun.
* ___ c. Clean a paint spray gun.

COURSE: Agriculture Production II

Unit 14: Electrical Wiring (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify electrical wiring supplies.
2. Demonstrate the ability to :
* a. Wire a lighting outlet controlled by a single pole switch.
* b. Wire three duplex receptacles using non-metallic cable.
* c. Wire a lighting outlet controlled by two three way switches.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Patton, Bob. Vocational Agriculture III. Stillwater: Oklahoma State Department of Vocational and Technical Education. 1978.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify 15 wiring devices.
Objective 2. The student will demonstrate the ability to
* a. Wire a lighting outlet controlled by a single pole switch with a duplex outlet.
* b. Wire three duplex outlets using nonmetallic cable.
* c. Wire a lighting outlet controlled by two three-way switches.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified electrical wiring supplies.
2. Demonstrated the ability to :
* ___ a. Wire a lighting outlet controlled by a single pole switch.
* ___ b. Wire three duplex receptacles using non-metallic cable.
* ___ c. Wire a lighting outlet controlled by two three way switches.

COURSE: Agriculture Production II

Unit 15: Agricultural Equipment Operation and Maintenance (15 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List items or systems that should be checked on a daily basis.
2. Demonstrate the ability to:
* a. Check engine oil levels.
* b. Check coolant levels.
* c. Check fuel levels.
* d. Check tires.
* e. Maintain battery.
* f. Check and adjust V-belt tension.
* g. Service an oil bath air cleaner.
* h. Service a paper element air filter.
* i. Check transmission, hydraulic, and final drive fluid levels.
* j. Servicing front wheel bearings.
* k. Change engine oil and filter.
* l. Change transmission, hydraulic, and final drive fluids and filters.
* m Lubricate front end, brake and clutch pivots, three point hitch etc.
* n. Change coolant and service radiator.
* o. Service power steering system.
* p. Service fuel filter.
* q. Bleed air from a diesel fuel system.
* r. Adjust brakes.
* s. Adjust clutch.
* t. Adjust steering and front end.

*Indicates essential/core objective

Suggested Instructional Procedures:

Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Parady, W. Harold, and Turner, J. Howard. Tractor Maintenance - Principles and Procedures. Athens, GA: AAVIM. 1975.

Turner, L. Howard. Safe Tractor Operation and Daily Care. Athens, GA: AAVIM. 1981

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list five items or systems that should be checked on a daily basis.

Objective 2. The student will demonstrate the ability to:

* a. Check engine oil levels.
* b. Check coolant levels.
* c. Check fuel levels.
* d. Check tires.
* e. Maintain battery.
* f. Check and adjust V-belt tension.
* g. Service an oil bath air cleaner.
* h. Service a paper element air filter.
* i. Check transmission, hydraulic, and final drive fluid levels.
* j. Servicing front wheel bearings.
* k. Change engine oil and filter.
* l. Change transmission, hydraulic, and final drive fluids and filters.
* m. Lubricate front end, brake and clutch pivots, three point hitch, etc.
* n. Change coolant and service radiator.
* o. Service power steering system.
* p. Service fuel filter.
* q. Bleed air from a diesel fuel system.
* r. Adjust brakes.
* s. Adjust clutch.
* t. Adjust steering and front end.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed items or systems that should be checked on a daily basis.
2. Demonstrated the ability to:
* ___ a. Check engine oil levels.
* ___ b. Check coolant levels.
* ___ c. Check fuel levels.
* ___ d. Check tires.
* ___ e. Maintain battery.
* ___ f. Check and adjust V-belt tension.
* ___ g. Service an oil bath air cleaner.
* ___ h. Service a paper element air filter.
* ___ i. Check transmission, hydraulic, and final drive fluid levels.
* ___ j. Servicing front wheel bearings.
* ___ k. Change engine oil and filter.
* ___ l. Change transmission, hydraulic, and final drive fluids and filters.
* ___ m Lubricate front end, brake and clutch pivots, three point hitch, etc.
* ___ n. Change coolant and service radiator.
* ___ o. Service power steering system.
* ___ p. Service fuel filter.
* ___ q. Bleed air from a diesel fuel system.
* ___ r. Adjust brakes.

* ___ s. Adjust clutch.
* ___ t. Adjust steering and front end.

AGRICULTURAL MECHANICS I
COURSE GUIDE

Developed by

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COURSE OUTLINE

Unit No.	Unit Title
1	Introduction
2	Safety
3	Basic Tools and Equipment
4	Measurement
5	Oxyacetylene Cutting
6	Arc Welding
7	Basic Small Engine Theory
8	Small Engine Electrical Systems
9	Small Engine Service
10	Small Engine Disassembly and Assembly
11	Basic Tractor Maintenance
12	Restoring and Refinishing Farm Equipment

COURSE TITLE: Agricultural Mechanics I

Unit 1: Introduction (5 days)

Objectives: Upon completion of this unit the student should be able to:

1. List occupations in agricultural power machinery.
2. List student requirements for agricultural power and machinery programs.
3. Identify student youth organization activities that promote and recognize achievements in agricultural power machinery.

Suggested Instructional Practices:

Lecture and discussion

Suggested Resources:

Primary Reference(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Future Farmers of America. Student Handbook. Alexandria: FFA. 1984.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will list five occupations available to graduates of the Agricultural Mechanics program.

Objective 2. The student will list three student requirements for the Agricultural Mechanics program.

Objective 3. The student will identify five programs or activities of the FFA that promote or recognize achievement in agricultural power and machinery.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Listed occupations in agricultural power machinery.
___ 2. Listed student requirements for agricultural power and machinery programs.
___ 3. Identified student youth organization activities that promote and recognize achievements in agricultural power machinery.

COURSE: Agricultural Mechanics I

Unit 2: Safety (4 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List steps in maintaining a safe and orderly shop.
* 2. Match classes of fire to their correct description.
* 3. State rules of safety relating to different situations in the shop.
* 4. List general rules for shop safety.

*Indicates core/essential objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Hires, Bill, et. al. Small Engine Repair: Two and Four Stroke Cycle. Stillwater: MAVCC. 1985.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list six steps in maintaining a safe and orderly shop.
* Objective 2. The student will match the four classes fire to their correct description.
* Objective 3. The student will state two safety rules relating to each of the following topics: fire prevention, oil and grease, eye protection, electrical, air pressure, equipment, and batteries.
* Objective 4. The student will list four rules of general shop safety.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed steps in maintaining a safe and orderly shop.
* ___ 2. Matched classes of fire to their correct description.
* ___ 3. Stated rules of safety relating to different situations in the shop.
* ___ 4. Listed general rules for shop safety.

COURSE: Agricultural Mechanics I

Unit 3: Basic Tools and Equipment (7 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the basic hand tools used in small engine maintenance.
* 2. Identify the tools used for overhaul of small engines.
* 3. Describe procedures for maintaining hand tools.

*Indicates core/essential objective

Suggested Instructional Procedures:

Visually identify and discuss each hand tool and procedures for maintenance. Demonstrate the use as is practical.

Suggested Resources:

Primary Resource(s): Hires, Bill, et. al. Small Engine Repair: Two and Four Stroke Cycle. Stillwater: MAVCC. 1985.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify 30 basic hand tools.
* Objective 2. The student will identify 15 overhaul tools.
* Objective 3. The student will describe one maintenance procedure for each of the following tools: screwdrivers, pliers, and adjustable wrenches.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the basic hand tools used in small engine maintenance.
* ___ 2. Identified the tools used for overhaul of small engines.
* ___ 3. Described procedures for maintaining hand tools.

COURSE: Agricultural Mechanics I

Unit 4: Measurement (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the major measuring instruments.
* 2. List steps in reading measuring instruments.
3. Demonstrate the ability to accurately measure objects using :
* a. Ruler
* b. Micrometer
* c. Telescoping gage
* d. Hole gage

*Indicates core/essential objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Hires, Bill, et. al. Small Engine Repair: Two and Four Stroke Cycle. Stillwater: MAVCC. 1985.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify the following instruments: ruler, micrometer, telescoping gage, and hole gage.
* Objective 2. The student will list four steps in reading a measuring instrument.
Objective 3. The student will measure a given object using the four instruments listed above to the following tolerances:
* a. Ruler +/- 1/16 inch
* b. Micrometer +/- .001 inch
* c. Telescoping gage +/- .001 inch
* d. Hole gage +/- .001 inch

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the major measuring instruments.
* ___ 2. Listed steps in reading measuring instruments.

3. Demonstrated the ability to accurately measure objects using:

* ___ a. Ruler
* ___ b. Micrometer
* ___ c. Telescoping gage
* ___ d. Hole gage

COURSE: Agricultural Mechanics I

Unit 5: Oxyacetylene Cutting (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the parts of an oxyacetylene cutting outfit.
* 2. Identify the parts of a torch body and cutting attachment.
* 3. List safety rules for using oxyacetylene equipment.
4. Identify the different types of oxyacetylene flames.
5. Demonstrate the ability to:
* a. Set-up equipment.
* b. Turn on, light and adjust a cutting torch to a neutral flame.
* c. Make a 90 degree cut on mild steel and restart the cut.

*Indicates core/essential objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will correctly identify 80% of the parts of an oxyacetylene cutting outfit.
* Objective 2. The student will correctly identify 80% of the parts of a torch body and cutting attachment.
* Objective 3. The student will list 10 safety rules for using an oxyacetylene outfit.
Objective 4. The student will identify the three types of flames.
Objective 5. The student will demonstrate the correct procedure for:
* a. setting up equipment.
* b. turning on, lighting, and adjusting the cutting torch.
* c. making a 90 degree cut in mild steel.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the parts of an oxyacetylene cutting outfit.
* ___ 2. Identified the parts of a torch body and cutting attachment.
* ___ 3. Listed safety rules for using oxyacetylene equipment.
___ 4. Identified the different types of oxyacetylene flames.

5. Demonstrated the ability to:

* ___ a. Set-up equipment.

* ___ b. Turn on, light and adjust a cutting torch to a neutral flame.

* ___ c. Make a 90 degree cut on mild steel and restart the cut.

COURSE: Agricultural Mechanics I

Unit 6: Arc Welding (15 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Identify common equipment and tools used in arc welding.
* 2. List safety precautions used in arc welding.
* 3. List the different types of electrodes used in arc welding.
* 4. Identify the meanings of the numbers in the electrode classification system.
5. Identify the different types of welds.
6. Identify the types of weld joints.
7. Demonstrate the ability to:
* a. Start, stop and restart a flat bead.
* b. Construct a pad.
* c. Construct a flat butt joint.

*Indicates core/essential objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will identify the four major types of arc welders, and the 11 parts and tools commonly used with each.

* Objective 2. The student will list 10 safety rules associated with arc welding.

* Objective 3. The student will identify four common types of electrodes used in arc welding.

* Objective 4. The student will identify the meanings of the four digits in the classification system.

Objective 5. The student will identify the three types of welds.

Objective 6. The student will identify the five different types of weld joints.

Objective 7. The student will demonstrate the ability to:
* a. Start, stop and restart a bead.
* b. Construct a pad.
* c. Construct a flat butt weld.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Identified common equipment and tools used in arc welding.
* ___ 2. Listed safety precautions used in arc welding.
* ___ 3. Listed the different types of electrodes used in arc welding.
* ___ 4. Identified the meanings of the numbers in the electrode classification system.
___ 5. Identified the different types of welds.
___ 6. Identified the types of weld joints.
___ 7. Demonstrated the ability to:
* ___ a. Start, stop and restart a flat bead
* ___ b. Construct a pad
* ___ c. Construct a flat butt joint

COURSE: Agricultural Mechanics I

Unit 7: Basic Small Engine Theory (8 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the major components of a four-stroke cycle engine.
* 2. Describe the events that occur in one cycle of a four-stroke cycle engine.
* 3. Identify the major components of the two stroke cycle engine.
* 4. Describe the events that occur in one cycle of a two-stroke cycle engine.

*Indicates core/essential objective

Suggested Instructional Procedures:

Illustrated lecture and discussion

Suggested Resources:

Primary Resource(s): Hires, Bill, et. al. Small Engine Repair: Two and Four Stroke Cycle. Stillwater: MAVCC. 1985.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify the 10 major parts of the four- stroke engine.
* Objective 2. The student will describe the events that occur as a four-cycle engine goes from intake to exhaust as related to position of the piston and valves.
* Objective 3. The student will identify the eight major parts of the two-stroke engine.
* Objective 4. The student will describe the events that occur as a two- cycle engine goes from intake/compression to power/exhaust.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the major components of a four-stroke cycle engine.
* ___ 2. Described the events that occur in one cycle of a four-stroke cycle engine.
* ___ 3. Identified the major components of the two stroke cycle engine.
* ___ 4. Described the events that occur in one cycle of a two-stroke cycle engine.

COURSE: Agricultural Mechanics I

Unit 8: Small Engine Electrical Systems (15 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Define common terms used in electrical systems.
2. Name the common sources of electricity in small engines and an example of each source.
* 3. Identify the parts of a basic circuit.
* 4. Identify the types of electrical circuits.
* 5. Identify the three instruments used in checking electrical circuits.
6. Demonstrate the ability to:
* a. Measure voltage.
* b. Measure amperage.
* c. Measure resistance.
* 7. Describe the types of ignition systems used in small gas engines.
* 8. Distinguish between the components of a primary and secondary battery ignition circuit.
9. State the purpose of each ignition component.
10. Demonstrate the ability to:
* a. Remove, service and replace sparkplug.
* b. Remove and replace contact points and condenser.
* c. Test coil, condenser, and flywheel magnet.

*Indicates core/essential objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Hires, Bill, et. al. Small Engine Repair: Two and Four Stroke Cycle. Stillwater: MAVCC. 1985.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will define 11 terms related to engine electrical systems.
Objective 2. The student will describe the two sources of electricity in small engines.
* Objective 3. The student will identify the three parts of a basic circuit.
* Objective 4. The student will identify the three types of electrical circuits.

* Objective 5. The student will identify the three instruments used in testing circuits.

Objective 6. The student will demonstrate the ability to measure:

* a. voltage using a voltmeter.

* b. amperage using an ammeter.

* c. continuity using a ohmmeter.

* Objective 7. The student will describe the components and functions of the four different ignition systems used on small engines.

* Objective 8. The student will distinguish between the components of a primary and secondary battery circuit.

Objective 9. The student will state the purpose of the 13 components of an ignition system.

Objective 10. The student will demonstrate the ability to:

* a. Remove, service and replace sparkplug.

* b. Remove and replace contact points and condenser.

* c. Test coil, condenser, and flywheel magnet.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Defined common terms used in electrical systems.

___ 2. Named the common sources of electricity in small engines and an example of each source.

* ___ 3. Identified the parts of a basic circuit.

* ___ 4. Identified the types of electrical circuits.

* ___ 5. Identified the three instruments used in checking electrical circuits

6. Demonstrated the ability to:

* ___ a. Measure voltage.

* ___ b. Measure amperage.

* ___ c. Measure resistance.

* ___ 7. Described the types of ignition systems used in small gas engines.

* ___ 8. Distinguished between the components of a primary and secondary battery ignition circuit.

___ 9. Stated the purpose of each ignition component.

10. Demonstrated the ability to:

* ___ a. Remove, service and replace sparkplug.

* ___ b. Remove and replace contact points and condenser.

* ___ c. Test coil, condenser, and flywheel magnet.

COURSE: Agricultural Mechanics I

Unit 9: Small Engine Service (15 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List the functions of engine oil.
* 2. Describe the SAE viscosity ratings.
* 3. Describe the API classifications.
* 4. Describe the functions of the cooling system on an air cooled engine.
5. Identify the components of the cooling system on an air cooled engine.
* 6. Describe the functions of the fuel system components.
* 7. Identify the different types of carburetors.
8. Identify the different types of air filters.
9. Identify the parts of a float-type carburetor.
10. Identify the different types of fuel filters.
* 11. Describe the purpose of the governor system.
* 12. Identify the types of governor systems and their components.
13. Demonstrate the ability to:
* a. Change engine oil.
* b. Service the crankcase breather.
* c. Service a foam type air cleaner.
* d. Service a float type carburetor.
* e. Service a governor system.
* f. Service a recoil-type starter.

*Indicates core/essential objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Hires, Bill, et. al. Small Engine Repair: Two and Four Stroke Cycle. Stillwater: MAVCC. 1985.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will describe four functions of the lubrication system.
* Objective 2. The student will describe how viscosity relates to operating temperature.
* Objective 3. The student will describe how the API classes relate to engine operating conditions.
* Objective 4. The student will describe the three functions of the air cooled cooling system.

Objective 5. The student will identify the six components of the air cooled cooling system.

* Objective 6. The student will describe the functions of the seven components of a fuel system.

* Objective 7. The student will identify float type and diaphragm-type carburetors.

Objective 8. The student will identify the three different types of air cleaners.

Objective 9. The student will identify the 11 parts of a float-type carburetor.

Objective 10. The student will identify the three different types of fuel strainers.

* Objective 11. The student will describe the two purposes of the governor system.

* Objective 12. The student will identify the two types of governor systems and their major components.

Objective 13. The student will demonstrate the ability to:

* a. Change engine oil.
* b. Service the crankcase breather.
* c. Service a foam type air cleaner.
* d. Service a float-type carburetor.
* e. Service a governor system.
* f. Service a recoil-type starter.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed the functions of engine oil.
* ___ 2. Described the SAE viscosity ratings.
* ___ 3. Described the API classifications.
* ___ 4. Described the functions of the cooling system on an air cooled engine.
___ 5. Identified the components of the cooling system on an air cooled engine.
* ___ 6. Described the functions of the fuel system components.
* ___ 7. Identified the different types of carburetors.
___ 8. Identified the different types of air filters.
___ 9. Identified the parts of a float-type carburetor.
___ 10. Identified the different types of fuel filters.
* ___ 11. Described the purpose of the governor system.
* ___ 12. Identified the types of governor systems and their components.
13. Demonstrated the ability to:
* ___ a. Change engine oil.
* ___ b. Service the crankcase breather.
* ___ c. Service a foam type air cleaner.
* ___ d. Service a float type carburetor.
* ___ e. Service a governor system.
* ___ f. Service a recoil-type starter.

COURSE: Agricultural Mechanics I

Unit 10: Small Engine Disassembly and Assembly (10 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Identify the parts of the piston and connecting rod assembly.
2. Identify the parts of the crankshaft assembly.
3. Identify the parts of the valve train.
4. Demonstrate the ability to :

* a. Disassemble a four stroke cycle small engine.
* b. Reassemble a four stroke cycle small engine.

*Indicates core/essential objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Hires, Bill, et. al. Small Engine Repair: Two and Four Stroke Cycle. Stillwater: MAVCC. 1985.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will identify 15 parts of the piston and connecting rod assembly.
Objective 2. The student will identify four parts of the crankshaft assembly.
Objective 3. The student will identify 15 parts of the valve train.
Objective 4. The student will demonstrate the ability to :

* a. Disassemble a four-stroke cycle engine.
* b. Reassemble a four-stroke cycle engine.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Identified the parts of the piston and connecting rod assembly.
___ 2. Identified the parts of the crankshaft assembly.
___ 3. Identified the parts of the valve train.
4. Demonstrated the ability to :

* ___ a. Disassemble a four stroke cycle small engine.
* ___ b. Reassemble a four stroke cycle small engine.

COURSE: Agricultural Mechanics I

Unit 11: Basic Tractor Maintenance (20 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List items or systems that should be checked on a daily basis.
2. Demonstrate the ability to:
* a. Check engine oil levels.
* b. Check coolant levels.
* c. Check fuel levels.
* d. Check tires.
* e. Maintain battery.
* f. Cneck and adjust V-belt tension.
* g. Service an oil bath air cleaner.
* h. Service a paper element air filter.
* i. Check transmission, hydraulic, and final drive fluid levels.
* j. Servicing front wheel bearings.
* k. Change engine oil and filter.
* l. Change transmission, hydraulic, and final drive fluids and filters.
* m Lubricate front end, brake and clutch pivots, three point hitch etc.
* n. Change coolant and service radiator.
* o. Service power steering system.
* p. Service fuel filter.
* q. Bleed air from a diesel fuel system.
* r. Adjust brakes.
* s. Adjust clutch.
* t. Adjust steering and front end.

*Indicates core/essential objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Parady, W. Harold, and Turner, J. Howard. Tractor Maintenance - Principles and Procedures. Athens, GA: AAVIM. 1975.

Turner, L. Howard. Safe Tractor Operation and Daily Care. Athens, GA: AAVIM. 1981

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list five items or systems that should be checked on a daily basis.

Objective 2. The student will demonstrate the ability to:

* a. Check engine oil levels.
* b. Check coolant levels.
* c. Check fuel levels.
* d. Check tires.
* e. Maintain battery.
* f. Check and adjust V-belt tension.
* g. Service an oil bath air cleaner.
* h. Service a paper element air filter.
* i. Check transmission, hydraulic, and final drive fluid levels.
* j. Servicing front wheel bearings.
* k. Change engine oil and filter.
* l. Change transmission, hydraulic, and final drive fluids and filters.
* m. Lubricate front end, brake and clutch pivots, three point hitch etc.
* n. Change coolant and service radiator.
* o. Service power steering system.
* p. Service fuel filter.
* q. Bleed air from a diesel fuel system.
* r. Adjust brakes.
* s. Adjust clutch.
* t. Adjust steering and front end.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed items or systems that should be checked on a daily basis.

2. Demonstrated the ability to:

* ___ a. Check engine oil levels.
* ___ b. Check coolant levels.
* ___ c. Check fuel levels.
* ___ d. Check tires.
* ___ e. Maintain battery.
* ___ f. Check and adjust V-belt tension.
* ___ g. Service an oil bath air cleaner.
* ___ h. Service a paper element air filter.
* ___ i. Check transmission, hydraulic, and final drive fluid levels.
* ___ j. Servicing front wheel bearings.
* ___ k. Change engine oil and filter.
* ___ l. Change transmission, hydraulic, and final drive fluids and filters.
* ___ m Lubricate front end, brake and clutch pivots, three point hitch etc.
* ___ n. Change coolant and service radiator.

* ___ o. Service power steering system.
* ___ p. Service fuel filter.
* ___ q. Bleed air from a diesel fuel system.
* ___ r. Adjust brakes.
* ___ s. Adjust clutch.
* ___ t. Adjust steering and front end.

COURSE: Agricultural Mechanics I

Unit 12: Restoring and Refinishing Farm Equipment (20 days)

Objectives: Upon completion of this unit, the student should be able to:

1. List the steps in preparing new metal for painting.
2. List the steps in preparing old metal for painting.
3. Describe the procedure for masking equipment before painting.
4. Identify the parts of a paint spray gun.
* 5. List basic procedures for adjusting a paint spray gun.
6. Describe the basic procedure for operating a paint spray gun.
7. Demonstrate the ability to:
* a. Prepare paint for spraying
* b. Operate a paint spray gun
* c. Clean a paint spray gun

*Indicates core/essential objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Cooper, Elmer. Agricultural Mechanics: Fundamentals and Applications. Albany: Delmar. 1987.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will list four steps in preparing new metal for painting.
Objective 2. The student will list three steps in preparing old metal for painting.
Objective 3. The student will describe the procedure for masking equipment for painting.
Objective 4. The student will identify six parts of a paint spray gun.
* Objective 5. The student will describe the basic procedure for adjusting a paint spray gun.
Objective 6. The student will describe the procedure for operating a paint spray gun.
Objective 7. The student will demonstrate the ability to:
* a. Prepare paint for spraying
* b. Operate a paint spray gun
* c. Clean a paint spray gun

Performance Record: Place a check by each objective that the student achieved.

___ 1. Listed the steps in preparing new metal for painting.
___ 2. Listed the steps in preparing old metal for painting.
___ 3. Described the procedure for masking equipment before painting.
___ 4. Identified the parts of a paint spray gun.
* ___ 5. Listed basic procedures for adjusting a paint spray gun.
___ 6. Described the basic procedure for operating a paint spray gun.
7. Demonstrated the ability to:
* ___ a. Prepare paint for spraying
* ___ b. Operate a paint spray gun
* ___ c. Clean a paint spray gun

AGRICULTURAL MECHANICS II
COURSE GUIDE

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COURSE OUTLINE

Unit No.	Unit Title
1	Introduction to Diesel Engines
2	Tools and Equipment
3	Cylinder Head and Assembly
4	Piston and Connecting Rod Assembly
5	Camshafts, Gear Trains, and Engine Timing
6	Crankshafts and Bearings
7	Cylinder Blocks
8	Lubrication Systems
9	Cooling Systems
10	Air Intake and Exhaust Systems
11	Diesel Fuel Systems
12	Charging Systems
13	Starting Systems
14	Engine Troubleshooting
15	Power Trains
16	Introduction to Hydraulics
17	Hydraulic Systems Components
18	Hydraulic Systems

COURSE: Agricultural Mechanics II

Unit 1: Introduction to Diesel Engines (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the basic parts of a diesel engine and their functions.
* 2. Describe the sequence of operations of a four stroke-cycle diesel engine.
* 3. List the differences between a gasoline and diesel engine.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Demonstrations

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify 18 major parts of a diesel engine and state their functions.
* Objective 2. The student will describe the sequence of operation of a four-stroke cycle engine beginning with intake and ending with exhaust.
* Objective 3. The student will list five differences in a gasoline and diesel engine.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the basic parts of a diesel engine and their functions.
* ___ 2. Described the sequence of operations of a four stroke-cycle diesel engine.
* ___ 3. Listed the differences between a gasoline and diesel engine.

COURSE: Agricultural Mechanics II

Unit 2: Tools and Equipment (7 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify lifting, hoisting, and supporting equipment for use with tractors and describe their use.
* 2. Identify testing equipment and special tools for use with tractors and describe their uses.
3. Demonstrate the ability to:
* a. Hoist a load properly using a chain hoist.
* b. Hoist and transport a load using the floor crane.
* c. Support a load using jack stands.
* d. Raise a load using a floor jack.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Deere and Co. Agricultural Safety. Moline. 1983.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify the following lifting and hoisting equipment: jack stands, splitting stand, floor jack, chain hoist, A-Frame, and hydraulic floor crane.
* Objective 2. The student will identify 19 testing devices and special tools used with tractors.
Objective 3. The student will demonstrate the ability to:
* a. Hoist a load properly using a chain hoist.
* b. Hoist and transport a load using the floor crane.
* c. Support a load using jack stands.
* d. Raise a load using a floor jack.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified lifting, hoisting, and supporting equipment for use with tractors and describe their use.

* ___ 2. Identified testing equipment and special tools for use with tractors and describe their uses.

3. Demonstrated the ability to:

* ___ a. Hoist a load properly using a chain hoist.

* ___ b. Hoist and transport a load using the floor crane.

* ___ c. Support a load using jack stands.

* ___ d. Raise a load using a floor jack.

COURSE: Agricultural Mechanics II

Unit 3: Cylinder Head and Assembly (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Name the major parts of a cylinder head assembly.
* 2. Identify the primary parts of a valve assembly.
3. Demonstrate the ability to:
* a. Remove, inspect and install a cylinder head.
* b. Disassemble, service, and reassemble a valve train.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will name the five major parts of a cylinder head assembly.
* Objective 2. The student will identify the four parts of the valve assembly.
Objective 3. The student will demonstrate the ability to:
* a. Remove, inspect and install a cylinder head.
* b. Disassemble, service, and reassemble a valve train.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Named the major parts of a cylinder head assembly.
* ___ 2. Identified the primary parts of a valve assembly.
3. Demonstrate the ability to:
* ___ a. Remove, inspect and install a cylinder head.
* ___ b. Disassemble, service, and reassemble a valve train.

COURSE: Agricultural Mechanics II

Unit 4: Piston and Connecting Rod Assembly (7 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the parts of a piston and connecting rod assembly and describe their functions.
* 2. Demonstrate the ability to remove a piston and connecting rod assembly, inspect and service, and replace.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify five parts of a piston and connecting rod assembly and state their functions.
* Objective 2. The student will demonstrate the ability to remove a piston and connecting rod assembly, inspect and service as needed, and replace.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the parts of a piston and connecting rod assembly and describe their functions.
* ___ 2. Demonstrated the ability to remove a piston and connecting rod assembly, inspect and service, and replace.

COURSE: Agricultural Mechanics II

Unit 5: Camshafts, Gear Trains, and Engine Timing (10 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Identify the parts of a valve train and describe their functions.
2. Identify the parts of timing gear train and describe their function.
* 3. Demonstrate the ability to adjust valve clearance.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will identify four parts of the valve train and describe each parts function.
Objective 2. The student will identify the four major gears in a gear train and describe their functions.
* Objective 3. The student will demonstrate the ability to adjust valve clearance.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Identified the parts of a valve train and describe their functions.
___ 2. Identified the parts of timing gear train and describe their function.
* ___ 3. Demonstrated the ability to adjust valve clearance.

COURSE: Agricultural Mechanics II

Unit 6: Crankshafts and Bearings (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the parts of a crankshaft and describe their function.
2. Match the arrangement of the crankshaft throws with the number of cylinders in the engine.
* 3. List three indications of bearing failure in an engine.
* 4. Demonstrate the ability to remove, inspect and service, and replace a crankshaft.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify the six parts of a crankshaft and describe their functions.
Objective 2. The student will match the arrangement of the crankshaft throws to the number of cylinders in the engine.
* Objective 3. The student will list three indicators of bearing failure.
* Objective 4. The student will demonstrate the ability to remove, inspect and service, and replace a crankshaft.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the parts of a crankshaft and describe their function.
___ 2. Matched the arrangement of the crankshaft throws with the number of cylinders in the engine.
* ___ 3. Listed three indications of bearing failure in an engine.
* ___ 4. Demonstrated the ability to remove, inspect and service, and replace a crankshaft.

COURSE: Agricultural Mechanics II

Unit 7: Cylinder Blocks (5 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Name advantages of removable cylinder liners over integral cylinder bores.
2. Describe the two types of cylinder liners.
3. Demonstrate the ability to:

* a. inspect cylinder liners.
* b. remove and install cylinder liners.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will name two advantages of removable cylinder liners over integral cylinder bores.
Objective 2. The student will describe wet and dry cylinder liners.
Objective 3. The student will demonstrate the ability to:

* a. inspect cylinder liners.
* b. remove and install cylinder liners.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Named advantages of removable cylinder liners over integral cylinder bores.
___ 2. Described the two types of cylinder liners.
3. Demonstrated the ability to:

* ___ a. inspect cylinder liners.
* ___ b. remove and install cylinder liners.

COURSE: Agricultural Mechanics II

Unit 8: Lubrication Systems (7 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Identify the components of a lubrication system and their function.
2. Identify the different types of oil pumps.
3. Identify the different types of oil filters.
4. Demonstrate the ability to:
* a. test oil pressure.
* b. service oil pressure indication instrument.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will identify seven major components of the lubrication system and describe their functions.
Objective 2. The student will identify three different types of oil pumps.
Objective 3. The student will identify two different types of oil filters.
Objective 4. The student will demonstrate the ability to:
* a. test oil pressure.
* b. service oil pressure indication instrument.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Identify the components of a lubrication system and their function.
___ 2. Identify the different types of oil pumps.
___ 3. Identify the different types of oil filters.
4. Demonstrate the ability to:
* ___ a. test oil pressure.
* ___ b. service oil pressure indication instrument.

COURSE: Agricultural Mechanics II

Unit 9: Cooling Systems (5 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Identify the parts of a liquid cooling system and describe their functions.
2. Demonstrate the ability to:
* a. Remove, inspect, and replace a thermostat.
* b. Pressure test a radiator cap.
* c. Pressure test a cooling system.
* d. Test for exhaust gas leakage and air in the cooling system.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will identify the twelve parts of a liquid cooling system and describe their functions.

Objective 2. The student will demonstrate the ability to:
* a. Remove, inspect, and replace a thermostat.
* b. Pressure test a radiator cap.
* c. Pressure test a cooling system.
* d. Test for exhaust gas leakage and air in the cooling system.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Identify the parts of a liquid cooling system and describe their functions.
2. Demonstrate the ability to:
* ___ a. Remove, inspect, and replace a thermostat.
* ___ b. Pressure test a radiator cap.
* ___ c. Pressure test a cooling system.
* ___ d. Test for exhaust gas leakage and air in the cooling system.

COURSE: Agricultural Mechanics II

Unit 10: Air Intake and Exhaust Systems (5 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Name the parts of the air intake system.
2. Identify the different types of air cleaners.
3. Name the parts of the exhaust system.
* 4. List the advantages of a turbo charged engine.
* 5. Demonstrate the ability to test an engine for air flow restrictions.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will name the five parts of the air intake system.
Objective 2. The student will identify three different types of air cleaners.
Objective 3. The student will name the four parts of the exhaust system.
* Objective 4. The student will list four advantages of a turbo charged engine.
* Objective 5. The student will demonstrate the ability to test an engine for air flow restrictions.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Named the parts of the air intake system.
___ 2. Identified the different types of air cleaners.
___ 3. Named the parts of the exhaust system.
* ___ 4. Listed the advantages of a turbo charged engine.
* ___ 5. Demonstrated the ability to test an engine for air flow restrictions.

COURSE: Agricultural Mechanics II

Unit 11: Diesel Fuel Systems (10 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Identify the parts of a diesel fuel system and describe their functions.
2. Demonstrate the ability to:

* a. Remove, test and adjust if needed, and install diesel fuel injectors.

* b. Time diesel injector pump.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fuel Systems. Stillwater, MAVCC. 1982.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will identify the six parts of a diesel fuel system and describe their functions.

Objective 2. The student will demonstrate the ability to:

* a. Remove, test and adjust if needed, and install diesel fuel injectors.

* b. Time diesel injector pump.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Identified the parts of a diesel fuel system and describe their functions.

2. Demonstrated the ability to:

* ___ a. Remove, test and adjust if needed, and install diesel fuel injectors.

* ___ b. Time diesel injector pump.

COURSE: Agricultural Mechanics II

Unit 12: Charging Systems (8 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Name the two types of charging circuits.
2. Identify the components of an alternator circuit and describe their functions.
3. List the advantages of an alternator over a generator.
4. Draw a diagram of an alternator charging circuit.
5. Demonstrate the ability to:

* a. Test the charging circuit.
* b. Test a storage battery.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Electrical Systems. Stillwater, MAVCC. 1982

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will name the two types of charging circuits.
Objective 2. The student will identify the six major components of the alternator circuit and state their function.
Objective 3. The student will list two advantage of an alternator as opposed to a generator.
Objective 4. The student will draw a diagram of an alternator charging circuit.
Objective 5. The student will demonstrate the ability to:
* a. test an alternator charging circuit.
* b. test a storage battery.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Named the two types of charging circuits.
___ 2. Identified the components of an alternator circuit and describe their functions.
___ 3. Listed the advantages of an alternator over a generator.
___ 4. Drew a diagram of an alternator charging circuit.

5. Demonstrated the ability to:

* ___ a. Test the charging circuit.

* ___ b. Test a storage battery.

COURSE: Agricultural Mechanics II

Unit 13: Starting Systems (10 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Identify the components of the starting system and describe their functions.
* 2. Draw a starting circuit.
3. Demonstrate the ability to:
* a. Remove, inspect, and replace the starter switch.
* b. Remove, inspect, and replace the safety switch.
* c. Remove, inspect, and replace the starter motor.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Electrical Systems. Stillwater, MAVCC. 1982

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will identify the four major parts of a starting circuit and state their functions.
* Objective 2. The student will draw a diagram showing the starting circuit.
Objective 3. The student will demonstrate the ability to:
* a. Remove, inspect, and replace the starter switch.
* b. Remove, inspect, and replace the safety switch.
* c. Remove, inspect, and replace the starter motor.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Identified the components of the starting system and describe their functions.
* ___ 2. Drew a starting circuit.
3. Demonstrated the ability to:
* ___ a. Remove, inspect, and replace the starter switch.
* ___ b. Remove, inspect, and replace the safety switch.
* ___ c. Remove, inspect, and replace the starter motor.

COURSE: Agricultural Mechanics II

Unit 14: Engine Troubleshooting (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List the steps for diagnosis testing of an engine.
* 2. List major checkpoints when inspecting a diesel engine.
* 3. State possible causes of why an engine will not start or is hard to start.
* 4. State possible causes of why an engine will start but will not crank.
* 5. State items that will cause an engine to misfire.
* 6. Demonstrate the ability to crank an engine that has been disabled.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Foutes, William. Diesel Mechanics: Fundamentals. Stillwater: MAVCC. 1982.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list five steps in diagnosing and testing an engine.
* Objective 2. The student will list four major checkpoints when inspecting an engine.
* Objective 3. The student will state five possible causes of why an engine will not start or is hard to start.
* Objective 4. The student will state two possible causes of why an engine will start but will not run.
* Objective 5. The student will state four possible causes of misfiring in a diesel engine.
* Objective 6. The student will demonstrate the ability to crank an engine that has been disabled by the instructor.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed the steps for diagnosis testing of an engine.
* ___ 2. Listed major checkpoints when inspecting a diesel engine.
* ___ 3. Stated possible causes of why an engine will not start or is hard to start.

* ___ 4. Stated possible causes of why an engine will start but will not crank.
* ___ 5. Stated items that will cause an engine to misfire.
* ___ 6. Demonstrated the ability to crank a disabled engine.

COURSE: Agricultural Mechanics II

Unit 15: Power Trains (7 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the major components of the power train and state their functions.
2. Identify the components of the clutch assembly and state their functions.
3. Name the common clutch malfunctions and state probable causes.
* 4. Demonstrate the ability to inspect, adjust, and service transmission shift bar housing and linkages.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Kukuk, Marvin and Mathis, Joe. Power Trains. Stillwater, MAVCC. 1983.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify the six major components of a power train and state their functions.
Objective 2. The student will identify the eight major components of a clutch assembly and state their functions.
Objective 3. The student will name six common clutch malfunctions and state two probable cause of each.
* Objective 4. The student will demonstrate the ability to inspect, adjust, and service transmission shift bar housing and linkage.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the major components of the power train and state their functions.
___ 2. Identified the components of the clutch assembly and state their functions.
___ 3. Named the common clutch malfunctions and state probable causes.
* ___ 4. Demonstrated the ability to inspect, adjust, and service transmission shift bar housing and linkages.

COURSE: Agricultural Mechanics II

Unit 16: Introduction to Hydraulics (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Define hydraulics.
2. List advantages and disadvantages of hydraulics.
* 3. Name hazards to safety when working with hydraulics.
* 4. List safety practices when working with hydraulics.
* 5. Identify the components of a hydraulic circuit and their functions.
* 6. Draw a sketch of a simple hydraulic circuit which shows the location of all major components.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Decker, Robert L. Hydraulics. Stillwater, MAVCC. 1980.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will define the term hydraulics.
Objective 2. The student will list three advantages and one disadvantage of hydraulics.
* Objective 3. The student will name four safety hazards when working with hydraulics.
* Objective 4. The student will list three safety practices to follow when working with hydraulics.
* Objective 5. The student will identify the five major components of a basic hydraulic circuit and state their functions.
* Objective 6. The student will draw a sketch of a simple circuit and label the major parts.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Defined hydraulics.
___ 2. Listed advantages and disadvantages of hydraulics.
* ___ 3. Named hazards to safety when working with hydraulics.
* ___ 4. Listed safety practices when working with hydraulics.

* ___ 5. Identified the components of a hydraulic circuit and their functions.

* ___ 6. Drew a sketch of a simple hydraulic circuit which shows the location of all major components.

COURSE: Agricultural Mechanics II

Unit 17: Hydraulic Systems Components (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the different types of hydraulic pumps and their characteristics.
* 2. Identify the different types of hydraulic valves and their functions.
* 3. Identify the different types of hydraulic cylinders and their characteristics.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Decker, Robert L. Hydraulics. Stillwater, MAVCC. 1980.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify the two different types of pumps and state their characteristics.
* Objective 2. The student will identify the three major types of valves and their functions.
* Objective 3. The student will identify the two different types of cylinders and describe their characteristics.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the different types of hydraulic pumps and their characteristics.
* ___ 2. Identified the different types of hydraulic valves and their functions.
* ___ 3. Identified the different types of hydraulic cylinders and their characteristics.

COURSE: Agricultural Mechanics II

Unit 18: Hydraulic Systems (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Name the different types of hydraulic systems and distinguish between each.
* 2. Describe the operation of the open center system.
* 3. Describe the operation of the closed center system.
4. Demonstrate the ability to:
* a. Bleed a hydraulic system.
* b. Check system for proper operation.

*Indicates core/essential objective.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Decker, Robert L. Hydraulics. Stillwater, MAVCC. 1980.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will name the two different types of hydraulic systems and state a distinguishing characteristic of each.
* Objective 2. The student will describe the flow of fluid in an open center system.
* Objective 3. The student will describe the flow of fluid in a closed center system.
Objective 4. The student will demonstrate the ability to:
* a. bleed a hydraulic system.
* b. check a system for proper operation.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Named the different types of hydraulic systems and distinguish between each.
* ___ 2. Described the operation of the open center system.
* ___ 3. Described the operation of the closed center system.
___ 4. Demonstrated the ability to:
* ___ a. Bleed a hydraulic system.
* ___ b. Check system for proper operation.

HORTICULTURE I
COURSE GUIDE

Developed by

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COURSE OUTLINE

Unit No.	Unit Title
1	Careers in Horticulture
2	Leadership/FFA
3	Supervised Occupational Experience
4	Plant Parts and Their Functions
5	Principles of Plant Identification
6	Plant Classification
7	Soils, Media, and Fertilizers
8	Horticultural Chemicals
9	Horticultural Structures and Environmental Controls
10	Plant Propagation
11	Flowering Pot Plant Production
12	Houseplant Production
13	Bedding Plant Production
14	Principles of Flower Arrangement
15	Holiday Decorations
16	Vegetable Production

COURSE: Horticulture I

Unit 1: Careers in Horticulture (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Define the major divisions of the horticulture industry in the U.S.
* 2. Describe careers in the horticulture industry.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Reily, Edward H., and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers Inc. 1983.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will define the following major production areas in horticulture: olericulture, ornamental and landscape horticulture, floriculture, and pomology.
* Objective 2. The student will describe three careers in the horticulture industry in terms of working conditions and educational requirements.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Defined the major divisions of the horticulture industry in the U.S.
* ___ 2. Described careers in the horticulture industry.

COURSE: Horticulture I

Unit 2: Leadership/FFA (5 days)

Objectives: Upon completion of this unit, the student should be able to:

1. List the aim and purposes of the FFA.
2. Name the officers of a local FFA Chapter.
3. Name FFA Awards, Contests, and Events that promote the development of horticultural and related occupational skills.

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): National Association of FFA. Student Handbook. Alexandria: National Assn. of the FFA. (current edition.)

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will list the general aim and six purposes of the FFA as described in the Official Handbook.

Objective 2. The student will name the six officers of the local FFA Chapter and their office.

Objective 3. The student will name four FFA sponsored events, contests, and awards that promote and recognize achievement in horticultural and related skills.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Listed the aim and purposes of the FFA.
___ 2. Named the officers of a local FFA Chapter.
___ 3. Named FFA Awards, Contests, and Events that promote the development of horticultural and related occupational skills.

COURSE: Horticulture I

Unit 3: Supervised Occupational Experience (3 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Describe the characteristics of the different types of SOE programs.
2. List the objectives of SOE.
* 3. List factors to consider in selecting an SOE.
4. Describe the elements of a written training agreement.
5. List the different types of records that should be kept for an SOE program.
6. Demonstrate the ability to:
* a. Prepare a plan for an SOE.
b. Complete an SOE training agreement.
* c. Keep records of an SOE.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Class and home assignments

Suggested Resources:

Primary Resource(s): McCully, Jimmy. Basic Vocational Education - Section IIIA - Introduction to Vocational Agriculture. Mississippi State: Research and Curriculum Unit. 1987.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will describe the characteristics of the two types of SOE programs.
Objective 2. The student will list three objectives of an SOE
* Objective 3. The student will list three factors that should be considered in selecting an SOE.
Objective 4. The student will describe five important elements of a training agreement.
Objective 5. The student will list five different types of records that should be kept for an SOE.
Objective 6. The student will demonstrate the ability to:
* a. Prepare a plan for SOE.
b. Complete an SOE training agreement.
* c. Keep records of an SOE.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Described the characteristics of the different types of SOE programs.
___ 2. Listed the objectives of SOE.
* ___ 3. Listed factors to consider in selecting an SOE.
___ 4. Described the elements of a written training agreement.
___ 5. Listed the different types of records that should be kept for an SOE program.
6. Demonstrated the ability to:
* ___ a. Prepare a plan for an SOE.
___ b. Complete an SOE training agreement.
* ___ c. Keep records of an SOE.

COURSE: Horticulture I

Unit 4: Plant Parts and Their Functions (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the primary parts of a plant.
* 2. Describe the functions of these parts.
* 3. Describe the growth process in plants.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Reily, Edward H., and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers Inc. 1983.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify the four main parts of a plant.
* Objective 2. The student will describe the major functions of each of the four main parts of a plant.
* Objective 3. The student will describe the growth process of a plant by defining the terms: photosynthesis, respiration, transpiration, and translocation.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identify the primary parts of a plant.
* ___ 2. Describe the functions of these parts.
* ___ 3. Describe the growth process in plants.

COURSE: Horticulture I

Unit 5: Principles of Plant Identification (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List characteristics that are used identifying plants.
* 2. Identify the different types of leaves.
* 3. Identify the different types of leaf-stem arrangement.
* 4. Identify the different types of stems.
* 5. Identify the different types of root systems.
* 6. Identify the different types of flowers.

* Indicates essential/core objective

Suggested Instructional Procedures:

Illustrated lecture and discussion

Suggested Resources:

Primary Resource(s): Reily, Edward H., and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers Inc. 1983.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list four characteristics that are used in identifying plants.
* Objective 2. The student will identify two different types of leaves.
* Objective 3. The student will identify three types of leaf-stem arrangement.
* Objective 4. The student will identify two different types of stems.
* Objective 5. The student will identify two different types of root systems.
* Objective 6. The student will identify two different type of flowers

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed characteristics that are used identifying plants.
* ___ 2. Identified the different types of leaves.
* ___ 3. Identified the different types of leaf-stem arrangement.
* ___ 4. Identified the different types of stems.
* ___ 5. Identified the different types of root systems.
* ___ 6. Identified the different types of flowers.

COURSE: Horticulture I

Unit 6: Plant Classification (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Describe how plants are classified by life cycle.
* 2. Describe how plants are classified botanically.
* 3. Differentiate between evergreen and deciduous plants.
* 4. Differentiate between monocotyledonous and dicotyledonous plants.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Reily, Edward H., and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers Inc. 1983.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will describe the three life cycles of plants.
* Objective 2. The student will describe the binomial system for naming plants.
* Objective 3. The student will state the primary difference in an evergreen and a deciduous plant.
* Objective 4. The student will state the primary difference in a monocot and a dicot plant.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Described how plants are classified by life cycle.
* ___ 2. Described how plants are classified botanically.
* ___ 3. Differentiated between evergreen and deciduous plants.
* ___ 4. Differentiated between monocotyledonous and dicotyledonous plants.

COURSE: Horticulture I

Unit 7: Soils, Media, and Fertilizers (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List the components of a soil.
* 2. Describe the characteristics that the mineral components give to the soil.
* 3. List the characteristics of a good soil medium.
* 4. Differentiate between a soil and a soil-less medium.
* 5. Identify components that are used in soil-less media and describe their functions.
* 6. List the major plant nutrients supplied by the soil and the part(s) of the plant that they affect most.
* 7. List the minor plant nutrients.
* 8. Describe the N-P-K ratio system used to classify fertilizers.
* 9. Describe how the pH of a soil affects plant nutrient availability.
* 10. Identify materials that can be used to raise or lower the pH of a soil.
11. Demonstrate the ability to:
    a. Differentiate between light textured, medium textured, and heavy textured soils.
* b. Prepare a soil-less medium.
    c. Measure soil pH.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Reily, Edward H., and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers Inc. 1983.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list the three mineral components of a soil and the three other major components of a soil.
* Objective 2. The student will describe the characteristics that each of the three mineral components give to a soil.
* Objective 3. The student will list three characteristics of a good soil medium.
* Objective 4. The student will describe the major difference in a soil and soil-less medium.

* Objective 5. The student will identify five components that are used in a soil-less medium and describe their functions.

* Objective 6. The student will list the three major plant nutrients that are supplied from the soil and state the part(s) of the plant that each affects most.

* Objective 7. The student will list the eight minor plant nutrients.

* Objective 8. The student will interpret the fertilizer analysis rating of common fertilizer mixes.

* Objective 9. The student will describe how pH affects the availability of nutrients in the soil.

* Objective 10. The student will identify materials which can be used to raise or lower the pH of a soil.

Objective 11. The student will demonstrate the ability to:

a. Classify a soil into one of three basic textural classes.

* b. Prepare a soil-less medium.

c. Measure soil pH.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed the components of a soil.

* ___ 2. Described the characteristics that the mineral components give to the soil.

* ___ 3. Listed the characteristics of a good soil medium.

* ___ 4. Differentiated between a soil and a soil-less medium.

* ___ 5. Identified components that are used in soil-less media and describe their functions.

* ___ 6. Listed the major plant nutrients supplied by the soil and the part(s) of the plant that they affect most.

* ___ 7. Listed the minor plant nutrients.

* ___ 8. Described the N-P-K ratio system used to classify fertilizers.

* ___ 9. Described how the pH of a soil affects plant nutrient availability.

* ___ 10. Identified materials that can be used to raise or lower the pH of a soil.

11. Demonstrated the ability to:

___ a. Differentiate between light textured, medium textured, and heavy textured soils.

* ___ b. Prepare a soil-less medium.

___ c. Measure soil pH.

COURSE: Horticulture I

Unit 8: Horticultural Chemicals (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Name major classes of chemicals used in horticulture and describe their uses.
* 2. List general safety procedures to be followed in handling, storing, applying, and disposing of chemicals.
* 3. Name different types of formulations that are used in horticultural chemical mixes.
* 4. Demonstrate the ability to properly mix, apply, and dispose of a pesticide.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Reily, Edward H., and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers Inc. 1983.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will name five major classes of chemicals and identify their uses.
* Objective 2. The student will describe eight safety precautions to be followed in handling, storing, applying, and disposing of chemicals.
* Objective 3. The student will name the four different formulations that are used in horticultural chemical mixes.
* Objective 4. The student will demonstrate the ability to properly mix, apply, and dispose of a pesticide.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Named major classes of chemicals used in horticulture and describe their uses.
* ___ 2. Listed general safety procedures to be followed in handling, storing, applying and disposing of chemicals.

* ___ 3. Named different types of formulations that are used in horticultural chemical mixes.

* ___ 4. Demonstrated the ability to properly mix, apply, and dispose of a pesticide.

COURSE: Horticulture I

Unit 9: Horticultural Structures and Environmental Controls (5 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Identify different types of greenhouses.
2. Describe uses of other growing structures.
* 3. Name different environmental factors that must be controlled in a greenhouse.
4. Describe different sources of heat used in greenhouses.
5. Describe different types of ventilation systems used in greenhouses.
6. Describe different types of cooling systems used in greenhouses.
* 7. Describe different methods for watering plants in a greenhouse.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Boodley, James. The Commercial Greenhouse. Albany: Delmar Publishers. 1981.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will identify four different types of greenhouses.
Objective 2. The student will describe the uses of hotbeds, coldframes, and lathhouses.
* Objective 3. The student will describe four environmental factors that must be controlled in a greenhouse.
Objective 4. The student will describe three different types of heating systems used in commercial greenhouses.
Objective 5. The student will describe three different types of ventilation systems used in commercial greenhouses.
Objective 6. The student will describe two different types of cooling systems used in commercial greenhouses.
* Objective 7. The student will describe six different methods used for watering plants in a greenhouse.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Identified different types of greenhouses.
___ 2. Described uses of other growing structures.
* ___ 3. Named different environmental factors that must be controlled in a greenhouse.

___ 4. Described different sources of heat used in greenhouses.
___ 5. Described different types of ventilation systems used in greenhouses.
___ 6. Described different types of cooling systems used in greenhouses.
* ___ 7. Described different methods for watering plants in a greenhouse.

COURSE: Horticulture I

Unit 10: Plant Propagation (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Describe different methods for asexual reproduction using cuttings.
* 2. Describe other methods of asexual reproduction.
* 3. List factors to take into consideration in propagating cuttings.
* 4. Differentiate between sexual and asexual reproduction.
5. Demonstrate the ability:
* a. to reproduce plants using cuttings.
* b. to reproduce plants using seeds.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Boodley, James. The Commercial Greenhouse. Albany: Delmar Publishers. 1981.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will describe three methods for asexual reproduction using cuttings.
* Objective 2. The student will describe three other methods for asexual reproduction aside from the use of cuttings.
* Objective 3. The student will describe four factors that should be considered in propagating cuttings.
* Objective 4. The student will state the primary difference between sexual and asexual reproduction
Objective 5. The student will demonstrate the ability to:
* a. Reproduce plants using cuttings
* b. Reproduce plants using seeds.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Described different methods for asexual reproduction using cuttings.
* ___ 2. Described other methods of asexual reproduction.
* ___ 3. Listed factors to take into consideration in propagating cuttings.
* ___ 4. Differentiated between sexual and asexual reproduction.

___ 5. Demonstrated the ability:

* a. to reproduce plants using cuttings.

* b. to reproduce plants using seeds.

COURSE: Horticulture I

Unit 11: Flowering Pot Plant Production (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify flowering pot plants produced commercially for holiday sales.
* 2. List items to be considered in developing a schedule for producing a given crop by a given date.
* 3. Describe the procedure for starting plants.
* 4. Describe general cultural requirements for a given crop.
* 5. Describe how the affect of night length affects the production of a given crop.
* 6. Demonstrate the ability to produce a given pot plant crop. (Students will be expected to produce at least one crop of chrysanthemums, poinsettias, or Easter Lilies. Choice of crop will be left to the discretion of the local teacher.)

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Reily, Edward H., and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers Inc. 1983.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify nine flowering pot plants commonly grown commercially. (Lilies, azaleas, roses, hydrangea, poinsettia, chrysanthemums, geraniums, begonia, violets.)
* Objective 2. The student will outline a growing schedule to yield marketable crop on a given date.
* Objective 3. The student will describe procedures for starting the plants, including containers, soil mix, and procedures.
* Objective 4. The student will describe general cultural requirements for a given crop including fertilizer, water, disease and insect control, temperature, and lighting requirements.
* Objective 5. The student will describe how photoperiodism affects the flowering and/or growth of poinsettias and mums.
* Objective 6. The student will demonstrate the ability to produce a marketable crop of pot plants.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified flowering pot plants produced commercially for holiday sales.
* ___ 2. Listed items to be considered in developing a schedule for producing a given crop by a given date.
* ___ 3. Described the procedure for starting plants.
* ___ 4. Described general cultural requirements for a given crop.
* ___ 5. Described how the affect of night length affects the production of a given crop.
* ___ 6. Demonstrate the ability to produce a given pot plant crop. (Students will be expected to produce at least one crop of chrysanthemums, poinsettias, or Easter Lilies. Choice of crop will be left to the discretion of the local teacher.)

COURSE: Horticulture I

Unit 12: Houseplant Production (5 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Identify common houseplants.
* 2. List major concerns related to growing houseplants.
* 3. Identify containers associated with houseplant production.
* 4. Describe the characteristics of a good soil mixture for houseplants.
* 5. Describe the procedure for potting houseplants.
6. Describe general cultural requirements for houseplants.
* 7. Demonstrate the ability to produce a given houseplant. (Students will be expected to produce at least one crop of plants grown commonly for foliage purposes.)

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Reily, Edward H., and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers Inc. 1983.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will identify fifty houseplants by common name from the listing provided in the FFA Floriculture Contest rules and regulations.
* Objective 2. The student will list three major concerns related to growing houseplants.
* Objective 3. The student will identify suitable containers associated with houseplant production.
* Objective 4. The student will describe three characteristics of a good soil medium for houseplants.
* Objective 5. The student will describe the procedure for potting houseplants.
Objective 6. The student will describe the general cultural requirements for houseplants in terms of watering, lighting, temperature, and soil requirements.
* Objective 7. The student will demonstrate the ability to produce a crop of foliage plants. (Choice of crop is left to the discretion of the local instructor.)

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified common houseplants.
* ___ 2. Listed major concerns related to growing houseplants.
* ___ 3. Identified containers and supplies associated with houseplant production.
* ___ 4. Described the characteristics of a good soil medium.
* ___ 5. Described the procedure for potting houseplants.
* ___ 6. Described general cultural requirements for houseplants.
* ___ 7. Demonstrated the ability to produce a given houseplant.

COURSE: Horticulture I

Unit 13: Bedding Plant Production (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify containers associated with bedding plants.
* 2. Describe general cultural requirements for growing bedding plants.
3. Demonstrate the ability to:
* a. Transplant a seedling.
* b. Produce a crop of bedding plants.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Boodley, James. The Commercial Greenhouse. Albany: Delmar Publishers. 1981.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify four containers suitable for producing bedding plants.
* Objective 2. Describe general cultural methods for growing bedding plants including requirements for the following: record keeping, germination, transplanting, growing media, fertilization, temperature, and marketing.
Objective 3. The student will demonstrate the ability to:
* a. Transplant a seedling.
* b. Produce a crop of a given bedding plant from seed to marketable plant.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified containers associated with bedding plants.
* ___ 2. Described general cultural requirements for growing bedding plants.
3. Demonstrated the ability to:
* ___ a. Transplant a seedling.
* ___ b. Produce a crop of bedding plants.

COURSE: Horticulture I

Unit 14: Principles of Flower Arrangement (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Describe the basic principles of floral design.
* 2. Describe the basic types of design materials.
* 3. Identify the basic floral design shapes.
* 4. List the steps in construction of a floral arrangement.
5. Demonstrate the ability to construct a floral arrangement.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Reily, Edward H., and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers Inc. 1983.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will describe the six basic principles of flower arrangement.
* Objective 2. The student will describe three basic types of design materials.
* Objective 3. The student will identify four basic floral design shapes.
* Objective 4. The student will list eight steps in the order they occur in constructing a circular arrangement.
Objective 5. The student will demonstrate the ability to construct a flower arrangement.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Described the basic principles of floral design.
* ___ 2. Described the basic types of design materials.
* ___ 3. Identified the basic floral design shapes.
* ___ 4. Listed the steps in construction of a floral arrangement.
___ 5. Demonstrated the ability to construct a floral arrangement.

COURSE: Horticulture I

Unit 15: Holiday Decorations (5 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Identify plant materials used in holiday decorations.
2. List steps in creating a holiday decoration.
3. Demonstrate the ability to construct a holiday decoration.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Reily, Edward H., and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers Inc. 1983.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will identify eight different plant materials that are commonly used in holiday decorations.
Objective 2. The student will list three steps in the order that they would occur in creating a holiday decoration.
Objective 3. The student will demonstrate the ability to construct a holiday decoration.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Identified plant materials used in holiday decorations.
___ 2. Listed steps in creating a holiday decoration.
___ 3. Demonstrated the ability to construct a holiday decoration.

COURSE: Horticulture I

Unit 16: Vegetable Production (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List factors to consider in selecting a garden site.
* 2. Distinguish between hardy and tender vegetables.
* 3. Demonstrate the ability to develop a written garden plan.
* 4. Describe factors to consider in selecting an adaptive variety.
* 5. Distinguish vegetables which are seeded versus transplanted.
6. Describe procedures for preparing heavy and light textured soils.
* 7. Describe procedures and factors in caring for a garden.
* 8. Identify the proper time of harvest for vegetables.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Reily, Edward H., and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers Inc. 1983.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list four factors to consider in selecting a garden site.
* Objective 2. Given a list of 20 common vegetables, the student will distinguish hardy vegetables from tender vegetables with 70% accuracy.
* Objective 3. The student will demonstrate the ability to develop a written garden plan.
* Objective 4. The student will describe three factors to consider in selecting an adaptive variety.
* Objective 5. Given a list of 20 common vegetables, the student will distinguish which vegetables are seeded directly into the garden and which are transplanted.
Objective 6. The student will describe general procedures for preparing a heavy soil and a light soil for planting.
* Objective 7. The student will describe procedures and factors in caring for a garden including the following: fertilizing, liming, watering, weed control, insect control, and disease control.
* Objective 8. The student will identify the proper time of harvest for 10 common vegetables.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed factors to consider in selecting a garden site.
* ___ 2. Distinguished between hardy and tender vegetables.
* ___ 3. Demonstrated the ability to develop a written garden plan.
* ___ 4. Described factors to consider in selecting an adaptive variety.
* ___ 5. Distinguished vegetables which are seeded versus transplanted.
___ 6. Described procedures for preparing heavy and light textured soils.
* ___ 7. Described procedures and factors in caring for a garden.
* ___ 8. Identified the proper time of harvest for vegetables.

HORTICULTURE II
COURSE GUIDE

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COURSE OUTLINE

Unit No.	Unit Title
1	Nursery Field Stock Production
2	Container Stock Production
3	Lawn Establishment and Maintenance
4	Nursery Marketing and Business Procedures
5	Landscape Design
6	Landscape Installation
7	Landscape Maintenance
8	Tree Fruits
9	Berries and Small Fruits
10	Grapes and Muscadines
11	Advanced Asexual Propagation
12	Advanced Sexual Propagation
13	Retail Floristry

COURSE: Horticulture II

Unit 1: Nursery Field Stock Production (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify common nursery plants that are grown as field stock. (See FFA List.)
2. Identify hand tools that are associated with field stock production.
* 3. Describe common cultural practices for field stock production.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Nursery Production, A Teacher's Manual. University Park: Pennsylvania State University. 1971.

National FFA Contests: Bulletin No. 4. Alexandria: National FFA Organization. (current edition)

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify 30 plants commonly grown as field stock by their common name from the listing in the Nursery/Landscaping Contest Rules and Regulations.

Objective 2. The student will identify 15 hand tools commonly associated with field stock production.

* Objective 3. The student will describe general cultural procedures for growing field stock including procedures for: crop rotation, soil preparation and modification, bedding and lining out stock, transplanting, watering, fertilizing, pruning and supporting, root pruning, controlling pests, winter protection, digging and holding plants, and grading.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified common nursery plants that are grown as field stock. (See FFA List)
___ 2. Identified hand tools that is associated with field stock production.
* ___ 3. Described common cultural practices for field stock production.

COURSE: Horticulture II

Unit 2: Container Stock Production (5 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Describe the advantages and disadvantages of different containers associated with container stock production.
* 2. Describe the cultural methods used in growing container stock.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Nursery Production, A Teacher's Manual. University Park: Pennsylvania State University. 1971.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will describe one advantage and one disadvantage of each of the following different types of containers used in container stock production: steel buckets, plastic buckets, and pressed paper.

* Objective 2. The student will describe general cultural methods used in growing container stock including the following: growing medium, planting, watering, fertilizing, pruning, supporting, controlling pests, winter protection, harvesting.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Described the advantages and disadvantages of different containers associated with container stock production.
* ___ 2. Described the cultural methods used in growing container stock.

COURSE: Horticulture II

Unit 3: Lawn Establishment and Maintenance (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Describe ways that turfgrasses are started in the U.S.
* 2. List steps in establishing a lawn.
* 3. List the operations involved in maintaining a lawn.
* 4. Describe the procedure for applying fertilizers to lawns.
5. Describe techniques involved in mowing and trimming lawns.
* 6. Describe techniques for watering a lawn.
7. Demonstrate the ability to mow and trim a lawn.

*Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Reiley, Edward H. and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers. 1979.

Evaluation and Suggested Minimum Performance Standards:

*	Objective 1.	The student will describe three methods that lawns are started in the U. S.
*	Objective 2.	The student will list in order four steps in starting a lawn.
*	Objective 3.	The student will list five operations involved in maintaining a lawn.
*	Objective 4.	The student will describe the basic procedures in applying fertilizers to lawns.
	Objective 5.	The student will describe the basic procedures and factors to take into consideration in mowing and trimming a lawn.
*	Objective 6.	The student will describe the basic procedures and factors to take into consideration in watering a lawn.
	Objective 7.	The student will demonstrate the ability to mow and trim a yard.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Described ways that turfgrasses are started in the U.S.
* ___ 2. Listed steps in establishing a lawn.

* ___ 3. Listed the operations involved in maintaining a lawn.
* ___ 4. Described the procedure for applying fertilizers to lawns.
___ 5. Described techniques involved in mowing and trimming lawns.
* ___ 6. Described techniques for watering a lawn.
___ 7. Demonstrated the ability to mow and trim a lawn.

COURSE: Horticulture II

Unit 4: Nursery Marketing and Business Procedures (5 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Describe the procedures for shipping nursery stock.
2. Describe the factors to consider in pricing nursery stock.
3. Describe the procedures for advertising nursery stock.
4. Describe the procedures for storing/holding nursery stock.
* 5. Describe procedures for grading nursery stock.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Nursery Production, A Teacher's Manual. University Park: Pennsylvania State University. 1971.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will describe the basic procedures for shipping ball and burlap stock, bare root stock, and container stock.

Objective 2. The student will describe the three basic factors to be considered in pricing stock.

Objective 3. The student will describe two ways in which commercial nurseries advertise their stock.

Objective 4. The student will describe the basic procedures for storing/holding nursery stock.

* Objective 5. The student will describe the basic factors and procedures that are used in grading nursery plants.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Described the procedures for shipping nursery stock.
___ 2. Described the factors to consider in pricing nursery stock.
___ 3. Described the procedures for advertising nursery stock.
___ 4. Described the procedures for storing/holding nursery stock.
* ___ 5. Described procedures for grading nursery stock.

COURSE: Horticulture II

Unit 5: Landscape Design (15 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Describe occupations in landscape design.
* 2. List the objectives of residential landscaping.
* 3. State the basic principles of landscape design.
* 4. Demonstrate the ability to draw a basic landscape design to a given scale.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Class and home assignments

Suggested Resources:

Primary Resource(s): Reiley, Edward H. and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers. 1979.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will describe three occupations in landscape design installation and maintenance.
* Objective 2. The student will list four objectives of residential landscaping.
* Objective 3. The student will state five basic principles of landscape design.
* Objective 4. The student will demonstrate the ability to draw a basic landscape design to a given scale.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Described occupations in landscape design.
* ___ 2. Listed the objectives of residential landscaping.
* ___ 3. Stated the basic principles of landscape design.
* ___ 4. Demonstrated the ability to draw a basic landscape design to a given scale.

COURSE: Horticulture II

Unit 6: Landscape Installation (15 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Name the common groups of plants used in landscape installation.
* 2. Identify common plants associated with each group and their uses.
* 3. Identify symbols used in a landscape plan.
* 4. List steps in preparing a planting bed.
5. Demonstrate the ability to:
* a. Prepare a bed for planting.
* b. Plant a shrub or tree.
* c. Stake and guy a newly planted tree.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Conner, E. Wesley. Landscape Design. San Luis Obispo: Vocational Education Productions. 1972.

Landscape Design. University Park: Pennsylvania State University. 1968.

Wilson, Scott. Landscape Installation. San Luis Obispo: Vocational Education Productions. 1976.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will name four major groups of plants that are used in landscape installation.
* Objective 2. The student will identify four common plants associated with each group.
* Objective 3. The student will identify eight common symbols used in a landscape plan.
* Objective 4. The student will list four steps in preparing a planting bed.
Objective 5. The student will demonstrate the ability to:
* a. Prepare a bed for planting.
* b. Plant a shrub or tree.
* c. Stake and guy a newly planted tree.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Named the common groups of plants used in landscape installation.
* ___ 2. Identified common plants associated with each group and their uses.
* ___ 3. Identified symbols used in a landscape plan.
* ___ 4. Listed steps in preparing a planting bed.
5. Demonstrated the ability to:
* ___ a. Prepare a bed for planting.
* ___ b. Plant a shrub or tree.
* ___ c. Stake and guy a newly planted tree.

COURSE: Horticulture II

Unit 7: Landscape Maintenance (15 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List reasons for pruning trees and shrubs.
* 2. Identify equipment used in pruning.
* 3. Describe the different types of pruning.
* 4. Identify tree structural parts.
5. Describe basic principles for irrigating landscape plants.
6. Demonstrate the ability to
* a. Prune a stem at the proper angle.
* b. Prune a tree or shrub.
* c. Water, fertilize, and control pests on shrubs.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Geer, Barbara Farabough. Basic Horticulture. Stillwater: Oklahoma State Department of Vo-Tech. 1981.

Wilson, Scott. Landscape Installation. San Luis Obispo: Vocational Education Productions. 1976.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will list five reasons for pruning trees and/or shrubs.
* Objective 2. The student will identify seven pieces of equipment used in pruning operations.
* Objective 3. The student will describe the two different kinds of pruning procedures.
* Objective 4. The student will identify seven different parts of a tree structure.
Objective 5. The student will list and describe six basic principles for irrigating plants.
Objective 6. The student will demonstrate the ability to:
* a. Prune a stem at the proper angle.
* b. Prune a tree or shrub.
* c. Water, fertilize, and control pests on shrubs.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed reasons for pruning trees and shrubs.
* ___ 2. Identified equipment used in pruning.
* ___ 3. Described the different types of pruning.
* ___ 4. Identified tree structural parts.
___ 5. Described basic principles for irrigating landscape plants.
6. Demonstrated the ability to:
* ___ a. Prune a stem at the proper angle.
* ___ b. Prune a tree or shrub.
* ___ c. Water, fertilize, and control pests on shrubs.

COURSE: Horticulture II

Unit 8: Tree Fruits (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the different types of fruit that are grown in Mississippi.
* 2. Describe factors to consider in selecting orchard sites.
* 3. List factors that influence spacing and layout of an orchard.
* 4. Describe general cultural practices for apples and peaches.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Stewart, Bob R., and Mark K. Mullinix. Fruit and Vegetable Production Unit for Plant Science Core Curriculum. Columbia, MO: Instructional Materials Laboratory. 1984.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify two different types of fruit grown in Mississippi.
* Objective 2. The student will describe how climate and soil conditions affect the selection of an orchard site.
* Objective 3. The student will list four factors that influence spacing and layout of an orchard.
* Objective 4. The student will describe the following cultural practices as related to apple and peach production: planting, pruning, pest control, thinning, and harvesting.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the different types of fruit that are grown in Mississippi.
* ___ 2. Described factors to consider in selecting orchard sites.
* ___ 3. Listed factors that influence spacing and layout of an orchard.
* ___ 4. Described general cultural practices for apples and peaches.

COURSE: Horticulture II

Unit 9: Berries and Small Fruits (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Identify the different types of berries and small fruits grown commercially.
* 2. Describe the steps in planting strawberries.
* 3. Describe general cultural practices for strawberries.
* 4. List the main soil requirement for blueberries.
* 5. Describe general cultural practices for blueberries.
* 6. Describe the general cultural practices for bramble fruits.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Reiley, Edward H. and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers. 1979.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will identify the following berries and small fruits: strawberries, blueberries, blackberries.
* Objective 2. The student will describe four major steps in planting strawberries.
* Objective 3. The student will describe the following cultural practices for strawberries: cultivation, weed control, mulching, fertilizing, frost control, and harvesting.
* Objective 4. The student will list three main soil requirements for blueberries.
* Objective 5. The student will describe the following general cultural requirements for blueberries: fertilizing, irrigation, mulching, pruning, harvesting.
* Objective 6. The student will describe the following general cultural methods for bramble fruits: pruning and training, cultivation, fertilizing, harvesting.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Identified the different types of berries and small fruits grown commercially.

* ___ 2. Described the steps in planting strawberries.
* ___ 3. Described general cultural practices for strawberries.
* ___ 4. Listed the main soil requirement for blueberries.
* ___ 5. Described general cultural practices for blueberries.
* ___ 6. Described the general cultural practices for bramble fruits.

COURSE: Horticulture II

Unit 10: Grapes and Muscadines (5 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. List basic requirements for successful grape production.
* 2. Name different types of grapes and their uses.
* 3. Describe procedures for establishing a vineyard.
4. Describe the three pruning procedures for established vines.
* 5. Describe routine cultural practices for established vines.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Hegwood, C.P., et.al. Establishment and Maintenance of Muscadine Vineyards. Mississippi State: MAFES. 1983.

Stewart, Bob R., and Mark K. Mullinix. Fruit and Vegetable Production Unit for Plant Science Core Curriculum. Columbia, MO: Instructional Materials Laboratory. 1984.

Evaluation and Suggested Minimum Performance Standards:

*	Objective 1.	The student will list four basic requirements for successful grape production.
*	Objective 2.	The student will name three different types of grapes and state two uses of each type.
*	Objective 3.	The student will describe the following procedures for establishing a vineyard: row spacing, planting, pruning and training.
	Objective 4.	The student will describe the three pruning procedures for established vines.
*	Objective 5.	The student will describe routine cultural practices for established vines including the following: fertilization, pest control, harvesting.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Listed basic requirements for successful grape production.
* ___ 2. Named different types of grapes and their uses.
* ___ 3. Described procedures for establishing a vineyard.

___ 4. Described the three pruning procedures for established vines.

* ___ 5. Described routine cultural practices for established vines.

COURSE: Horticulture II

Unit 11: Advanced Asexual Propagation (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Name the different methods of advanced asexual propagation techniques.
* 2. Describe the processes of separation and division and explain the difference in the two.
* 3. List plants that can be propagated by separation and division.
* 4. List reasons for grafting.
* 5. Identify the different types of grafts and give an example of a plant that is commonly reproduced by each.
* 6. List steps in the budding process.
* 7. List plants propagated by budding.
* 8. Name the different types of layering.
* 9. List plants commonly propagated by layering.
10. Demonstrate the ability to:
* a. Propagate a plant by T-budding.
* b. Propagate a plant by cleft grafting.
* c. Propagate a plant by simple layering.
* d. Propagate a plant by air layering.

* Indicates exxential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Reiley, Edward H. and Shry, Carroll L. Introductory Horticulture. 2nd ed. Albany: Delmar Publishers. 1979.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will name four methods of advanced asexual propagation other than though the use of cuttings.
* Objective 2. The student will describe the processes of separation and division and explain the major difference in the two processes.
* Objective 3. The student will name four plants that are commonly propagated by separation or division.
* Objective 4. The student will list two reasons for grafting.
* Objective 5. The student will identify the three major types of grafts and name a plant that is commonly grafted by each type.

* Objective 6. The student will list seven steps in the budding process in their correct order.
* Objective 7. The student will list three plants that are commonly propagated by budding.
* Objective 8. The student will name four different types of layering.
* Objective 9. The student will list five different plants that are commonly propagated by layering.
Objective 10. The student will demonstrate the ability to:
* a. Propagate a plant by T-budding.
* b. Propagate a plant by cleft grafting.
* c. Propagate a plant by simple layering.
* d. Propagate a plant by air layering.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Named the different methods of advanced asexual propagation techniques.
* ___ 2. Described the processes of separation and division and explain the difference in the two.
* ___ 3. Listed plants that can be propagated by separation and division.
* ___ 4. Listed reasons for grafting.
* ___ 5. Identified the different types of grafts and give an example of a plant that is commonly reproduced by each.
* ___ 6. Listed steps in the budding process.
* ___ 7. Listed plants propagated by budding.
* ___ 8. Named the different types of layering.
* ___ 9. Listed plants commonly propagated by layering.
___ 10. Demonstrated the ability to:
* ___ a. Propagate a plant by T-budding.
* ___ b. Propagate a plant by cleft grafting.
* ___ c. Propagate a plant by simple layering.
* ___ d. Propagate a plant by air layering.

COURSE: Horticulture II

Unit 12: Advanced Sexual Propagation (10 days)

Objectives: Upon completion of this unit, the student should be able to:

* 1. Describe the processes of scarification and stratification.
* 2. State the reasons for scarification of seeds.
* 3. State a reason for stratification of seeds.
* 4. Describe the different methods of scarification.
* 5. Demonstrate the ability to scarify a selected type of seed.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Greer, Barbara Farabough. Basic Horticulture. Stillwater: Oklahoma Department of Vo-Tech. 1981.

Evaluation and Suggested Minimum Performance Standards:

* Objective 1. The student will describe the processes of scarification and stratification.
* Objective 2. The student will state two reasons for scarifying seeds.
* Objective 3. The student will state one reason for stratifying seeds.
* Objective 4. The student will describe two methods for scarifying seeds.
* Objective 5. The student will demonstrate the ability to scarify seed using a file or sandpaper.

Performance Record: Place a check by each objective that the student achieved:

* ___ 1. Described the processes of scarification and stratification.
* ___ 2. Stated the reasons for scarification of seeds.
* ___ 3. Stated a reason for stratification of seeds.
* ___ 4. Described the different methods of scarification.
* ___ 5. Demonstrated the ability to scarify a selected type of seed.

COURSE: Horticulture II

Unit 13: Retail Floristry (10 days)

Objectives: Upon completion of this unit, the student should be able to:

1. Describe occupations in the retail floristry industry.
2. Define merchandizing.
* 3. List and describe factors which influence the selling price of a product.
4. Describe the advantages of different types of advertising media.
5. Name important points to consider in locating a retail flower shop.
6. List factors which encourage employee team spirit.
* 7. Describe procedures for handling and storing floral products.
* 8. Name and describe the financial records that are necessary for business management.
9. Demonstrate the ability to:
* a. Take an order for floral products over the telephone.
* b. Complete a billing ticket for an order.

* Indicates essential/core objective

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Retail Flower Shop Operation and Management. University Park: Pennsylvania State University. 1968.

Evaluation and Suggested Minimum Performance Standards:

Objective 1. The student will describe three major duties of each of three different occupations in retail floristry.
Objective 2. The student will define the term "merchandizing".
* Objective 3. The student will list and describe four factors that influence the selling price of a product.
Objective 4. The student will state one advantage and one disadvantage of each of the following advertising media: direct mail, radio, newspaper.
Objective 5. The student will state two factors to consider in selecting the location of a retail flower shop.
Objective 6. The student will list five factors that can encourage team spirit in a retail flower shop.
* Objective 7. The student will describe general procedures to be followed in handling and storing floral products.

* Objective 8. The student will name and describe the following records: accounts receivable, accounts payable, and the general ledger.

Objective 9. The student will demonstrate the ability to:

* a. Take an order for floral products over the telephone.

* b. Complete a billing ticket for an order.

Performance Record: Place a check by each objective that the student achieved:

___ 1. Described occupations in the retail floristry industry.

___ 2. Defined merchandizing.

* ___ 3. Listed and described factors which influence the selling price of a product.

___ 4. Described the advantages of different types of advertising media.

___ 5. Named important points to consider in locating a retail flower shop.

___ 6. Listed factors which encourage employee team spirit.

* ___ 7. Described procedures for handling and storing floral products.

* ___ 8. Named and described the financial records that are necessary for business management.

9. Demonstrated the ability to:

* ___ a. Take an order for floral products over the telephone.

* ___ b. Complete a billing ticket for an order.

AGRICULTURE BUSINESS

AND

MANAGEMENT I

Course Guide

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COURSE: AGRICULTURE BUSINESS AND MANAGEMENT I

Unit 1: Leadership Activities

Unit 2: Public Speaking

Unit 3: Parliamentary Procedure

Unit 4: Selecting and Planning An SOE Program

Unit 5: Implementing an SOE

Unit 6: Anatomy and Physiology of Farm Animals

Unit 7: Breeds

Unit 8: Animal Nutrition

Unit 9: Animal Health

Unit 10: Parts and Classification of Agricultural

Unit 11: Reproduction of Plants

Unit 12: Plant Nutrition

Unit 13: Plant Pests and Control

Unit 14: Soil Conservation Practices

Unit 15: Computer Applications

Unit 16: Agricultural Business Organizations

Unit 17: Records and Recordkeeping

Unut 18: Taxes, Insurance and Business Law

Unit 19: Agricultural Marketing

Unit 20: Agricultural Credit

Unit 21: Budgets

Unit 22: Property Acquisition

Unit 23: Legal Description of Land

Unit 24: Surveying

Unit 25: Facility and Equipment Management

COURSE: Agriculture Business and Management I

Unit 1: Leadership Activities (2 days)

Core Objectives: Upon completion of this unit, the student will:

*1. use the Official FFA Manual or Student Handbook to discover information about the FFA.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Homework assignment

Suggested Resources:

Primary Resource(s): FFA Manual
Patton, Bob and Harp, Keith. Vocational Agriculture I. Stillwater: Oklahoma Department of Vocational and Technical Education. 1984.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will complete the Student Assignment "Use of the Official FFA Manual."

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Used the Official FFA Manual or Student Handbook to discover information about the FFA.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 2: Public Speaking (7 days)

Core Objectives: Upon completion of this unit, the student will:

*1. list guidelines for preparing a successful speech.
*2. list steps to follow in writing a speech.
*3. list reasons for using outlines in delivering a speech.
*4. name the principle parts of an outline.
*5. develop an outline for a 3-5 minute speech.
*6. demonstrate the ability to present a 3-5 minute speech.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion
Student presentation

Suggested Resources:

Primary Resource(s): Patton, Bob and Harp, Keith. Vocational Agriculture I. Stillwater: Oklahoma Department of Vocational and Technical Education. 1984.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will list 4 guidelines for preparing a successful speech.
*Objective 2: The student will list 5 steps to follow in writing a speech.
*Objective 3: The student will list 2 reasons for using an outline in delivering a speech.
*Objective 4: The student will name the 3 principle parts of a speech.
*Objective 5: The student will develop an outline for a 3-5 minute speech.
*Objective 6: The student will present a 3-5 minute speech to the class.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Listed guidelines for preparing a successful speech.

____*2. Listed steps to follow in writing a speech.
____*3. Listed reasons for using outlines in delivering a speech.
____*4. Named the principle parts of an outline.
____*5. Developed an outline for a 3-5 minute speech.
____*6. Demonstrated the ability to present a 3-5 minute speech.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 3: Parliamentary Procedure (5 days)

Core Objectives: Upon completion of this unit, the student will:

*1. list the purposes of parliamentary procedure.
*2. name the different methods for voting in a meeting.
3. describe the different types of motions.
4. demonstrate the ability to receive and dispose of a main motion.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion
Classroom demonstration and practice

Suggested Resources:

Primary Resource(s): Patton, Bob and Harp, Keith. Vocational Agriculture I. Stillwater: Oklahoma Department of Vocational and Technical Education. 1984.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will list 3 purposes of parliamentary procedure.
*Objective 2: The student will name 3 methods for voting in a meeting.
Objective 3: The student will describe the 4 different types of motions and the 5 major classes of motions with 70% accuracy.
Objective 4: The student will demonstrate the ability to receive and dispose of a main motion.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Listed the purposes of parliamentary procedure.
____*2. Named the different methods for voting in a meeting.
____3. Described the different types of motions.
____4. Demonstrated the ability to receive and dispose of a main motion.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 4: Selecting and Planning an SOE Program (5 days)

Core Objectives: Upon completion of this unit, the student will:

*1. list the 3 objectives of SOEP.
*2. state the minimum requirements for SOEP.
*3. describe the 2 types of SOEP.
*4. list the benefits of SOEP.
*5. list the factors to consider in selecting an SOEP.
*6. identify the important elements of an SOEP.
*7. demonstrate the ability to:
    a. develop a long-range personal plan.
    b. develop a short-range personal plan.
    c. complete a training agreement.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion
Class and homework assignments

Primary Resource(s): McCully, Jimmy. Basic Vocational Education - Section IIIA - Introduction to Vocational Agriculture. Mississippi State: Research and Curriculum Unit. 1987.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will list the 3 objectives of SOEP.
*Objective 2: The student will state the minimum requirements for SOEP.
*Objective 3: The student will describe the 2 types of SOEP.
*Objective 4: The student will list 2 benefits of SOEP.
*Objective 5: The student will list 3 factors to consider in selecting an SOEP.
*Objective 6: The student will identify the 5 important elements of an SOEP.
*Objective 7: The student will demonstrate the ability to:
    a. develop a long-range personal plan.
    b. develop a short-range personal plan.
    c. complete a training agreement.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Listed the 3 objectives of SOEP.
____*2. Stated the minimum requirements for SOEP.
____*3. Described the 2 types of SOEP.
____*4. Listed the benefits of SOEP.
____*5. Listed the factors to consider in selecting an SOEP.
____*6. Identified the important elements of an SOEP.
____*7. Demonstrated the ability to:
____ a. develop a long-range personal plan.
b. develop a short-range personal plan.
c. complete a training agreement.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management

Unit 5: Implementing an SOE (7 days)

Core Objectives: Upon completion of this unit, the student will:

*1. describe why recordkeeping is important.
*2. name the components of an ownership SOE record.
*3. describe how expense records are kept.
*4. describe how income records are kept.
*5. describe how inventory records are kept.
*6. describe how enterprise financial records are kept.
*7. describe how records of other learning activities are kept.
*8. name the components of the placement of SOE records.
*9. describe how records of learning activities are kept.
*10. describe how SOE program records are summarized.
*11. describe how records of leadership activities are kept.
*12. describe how the net worth statement is kept.
*13. demonstrate the ability to:
    a. keep income and expense records.
    b. keep inventory records.
    c. compute enterprise summaries.
    d. keep placement records.
    e. summarize the SOE program.
    f. keep leadership activity records.
    g. compute a net worth statement.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion
Classroom and homework assignments

Suggested Resources:

Primary Resource(s): McCully, Jimmy. Basic Vocational Education - Section IIIA - Introduction to Vocational Agriculture. Mississippi State: Research and Curriculum Unit. 1987.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will describe why record keeping is important.
*Objective 2: The student will name 5 components of an ownership SOE record.
*Objective 3: The student will describe how expense records are kept.
*Objective 4: The student will describe how income records are kept.
*Objective 5: The student will describe how inventory records are kept.
*Objective 6: The student will describe how enterprise financial records are kept.
*Objective 7: The student will describe how records of other learning activities are kept.
*Objective 8: The student will name 3 components of the placement of SOE records.
*Objective 9: The student will describe how records of learning activities are kept.
*Objective 10: The student will describe how SOE program records are summarized.
*Objective 11: The student will describe how records of leadership activities are kept.
*Objective 12: The student will describe how the net worth statement is kept.
*Objective 13: The student will demonstrate the ability to:
a. keep income and expense records.
b. keep inventory records.
c. compute enterprise summaries.
d. keep placement records.
e. summarize the SOE program.
f. keep leadership activity records.
g. compute a net worth statement.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Described why record keeping is important.
____*2. Named the components of an ownership SOE record.
____*3. Described how expense records are kept.
____*4. Described how income records are kept.
____*5. Described how inventory records are kept.
____*6. Described how enterprise financial records are kept.
____*7. Described how records of other learning activities are kept.
____*8. Named the components of the placement of SOE records.
____*9. Described how records of learning activities are kept.
____*10. Described how SOE program records are summarized.
____*11. Described how records of leadership activities are kept.

___*12. Described how the net worth statement is kept.
___*13. Demonstrated the ability to:
a. keep income and expense records.
b. keep inventory records.
c. compute enterprise summaries.
d. keep placement records.
e. summarize the SOE program.
f. keep leadership activity records.
g. compute a net worth statement.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 6: Anatomy and Physiology of Farm Animals (10 days)

Core Objectives: Upon completion of this unit, the student will:

*1. list the different systems of the body anatomy of an animal.
*2. describe the function(s) of each system.
*3. describe the reproductive cycle of domestic animals.
*4. describe the digestive process in ruminant animals.
*5. describe the digestive process in non-ruminant animals.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): McCully, Jimmy. A Reference Unit on Basic Principles of Animal Science. Mississippi State: Research and Curriculum Unit. 1976.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will list the 10 different systems of the body anatomy of an animal with 70% accuracy.
*Objective 2: The student will describe the function(s) of each system with 70% accuracy.
*Objective 3: The student will describe the reproductive cycle of domestic animals with 70% accuracy
*Objective 4: The student will describe the digestive process in ruminant animals with 70% accuracy.
*Objective 5: The student will describe the digestive process in non-ruminant animals with 70% accuracy.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Listed the different systems of the body anatomy of an animal.
____*2. Described the function(s) of each system.

____*3. Described the reproductive cycle of domestic animals.
____*4. Described the digestive process in ruminant animals.
____*5. Described the digestive process in non-ruminant animals.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 7: Breeds (3 days)

Core Objectives: Upon completion of this unit, the student will:

*1. identify the major breeds of beef cattle.
*2. identify the major breeds of hogs.
*3. identify the major breeds of dairy cattle.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Illustrated Lecture and Discussion

Suggested Resources:

Primary Resource(s): Patton, Bob and Harp, Keith. Vocational Agriculture I. Stillwater: Oklahoma Department of Vocational and Technical Education. 1984.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will identify 10 major breeds of beef cattle.
*Objective 2: The student will identify 4 major breeds of hogs.
*Objective 3: The student will identify 4 major breeds of dairy cattle.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Identified the major breeds of beef cattle.
____*2. Identified the major breeds of hogs.
____*3. Identified the major breeds of dairy cattle.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 8: Animal Nutrition (1 day)

Core Objectives: Upon completion of this unit, the student will:

*1. name and define the different categories of feeds.
*2. name the nutrient groups and identify their functions.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion
Class and homework assignments

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma Department of Vocational and Technical Education. 1986.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will name the 3 feed categories and state their definitions.
*Objective 2: The student will name the 6 nutrient groups and state one function of each group.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Named and defined the different categories of feeds.
____*2. Named the nutrient groups and identified their functions.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 9: Animal Health (1 day)

Core Objectives: Upon completion of this unit, the student will:

*1. state management practices for maintaining animal health.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma Department of Vocational and Technical Education. 1986.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will state 7 management practices for maintaining animal health.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Stated management practices for maintaining animal health.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 10: Parts and Classification of Agricultural Plants (3 days)

Core Objectives: Upon completion of this unit, the student will:

*1. identify the parts of a plant.
*2. describe the functions of the 4 basic parts of a plant.
*3. describe how plants are classified by life cycle.
*4. describe the different classes of agricultural plants based upon their use.
*5. describe the differences in monocotyledonous and dicotyledonous plants.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma Department of Vocational and Technical Education. 1986.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will label the parts of a legume plants with 70% accuracy.
*Objective 2: The student will describe 2 functions of each of the four basic plant parts.
*Objective 3: The student will describe the 4 major life cycle classes of plants.
*Objective 4: The student will describe the 7 different classes of plants based upon their agricultural use with 70% accuracy.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Identified the parts of a plant.
____*2. Described the functions of the 4 basic parts of a plant.
____*3. Described how plants are classified by life cycle.

____*4. Described the different classses of agricultural plants based upon their use.
____*5. Described the differences in monocotyledonous and dicotyledonous plants.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 11: Reproduction of Plants (2 days)

Core Objectives: Upon completion of this unit, the student will:

*1. describe the different ways in which plants reproduce.
*2. identify the parts of a complete flower.
*3. list the requirements for seed germination and growth.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma Department of Vocational and Technical Education. 1986.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will describe the 2 methods by which plants reproduce under natural conditions.
*Objective 2: The student will identify the parts of a complete flower on a diagram with 70% accuracy.
*Objective 3: The student will list 3 requirements for good germination.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Described the different ways in which plants reproduce.
____*2. Identified the parts of a complete flower.
____*3. Listed the requirements for seed germination and growth.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 12: Plant Nutrition (3 days)

Core Objectives: Upon completion of this unit, the student will:

*1. name the major plant nutrients that are supplied through the soil and identify their functions.
*2. list the secondary nutrients that must be present for proper growth.
*3. list the principles involved in determining the amounts and kinds of fertilizer to use.
*4. interpret the analysis of a complete fertilizer.
*5. demonstrate the ability to obtain a soil sample for fertility testing.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Patton, Bob. Vocational Agriculture III. Stillwater: Oklahoma Department of Vocational and Technical Education. 1978.

Evaluation and Suggested Minimum Performance Record:

*Objective 1: The student will list the 3 primary nutrients and identify functions of each.
*Objective 2: The student will list the 3 secondary nutrients that must be present for plant growth.
*Objective 3: The student will list 4 factors that influence the amount and kind of fertilizer to be used.
*Objective 4: The student will interpret the N-P-K analysis rating of a complete fertilizer.
*Objective 5: The student will demonstrate the ability to collect a sample of a given soil for fertility testing purposes.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Named the major plant nutrients that are supplied through the soil and identify their functions.
____*2. Listed the secondary nutrients that must be present for proper growth.
____*3. Listed the principles involved in determining the amounts and kinds of fertilizer to use.
____*4. Interpreted the analysis of a complete fertilizer.
____*5. Demonstrated the ability to obtain a soil sample for fertility testing.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 13: Plant Pests and Control (2 days)

Core Objectives: Upon completion of this unit, the student will:

*1. name the common groups of plant pests.
*2. describe methods by which plant pests can be controlled.
3. define the term "integrated pest management."
*4. name the agents that commonly cause disease in plants.
*5. describe methods by which plant diseases can be controlled.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vocational and Technical Education. 1986.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will name the 3 common groups of plant pests.
*Objective 2: The student will describe the 4 general methods for controlling plant pests.
Objective 3: The student will define the term "integrated pest management."
*Objective 4: The student will name and describe 4 agents that can cause plant diseases.
*Objective 5: The student will describe 4 methods for controlling plant diseases.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

___ *1. Named the common groups of plant pests.
___ *2. Described the methods by which plant pests can be controlled.

_____3. Defined the term "integrated pest management."
____*4. Named the agents that commonly cause diseases in plants.
____*5. Described methods by which plant diseases can be controlled.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 14: Soil Conservation Practices (4 days)

Core Objectives: Upon completion of this unit, the student will:

*1. list the reasons why soil is important.
*2. list the factors which affect soil formation.
*3. identify the 2 types of erosion.
*4. identify the 3 types of water erosion.
*5. list the management practices that aid in erosion control.
*6. list management practices that aid in erosion control.
*7. list factors that determine a land capability class.
*8. name the land capability classes and their uses.

* Indicates core/essential objectives

Suggested Instructional Practices:

Lecture and Discussion

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma Department of Vocational and Technical Education. 1986.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will list 3 reasons why soil is important.
*Objective 2: The student will list 4 factors which affect soil formation.
*Objective 3: The student will name the 2 types of erosion.
*Objective 4: The student will describe the characteristics of the three types of water erosion.
*Objective 5: The student will list 4 management practices that aid in erosion control.
*Objective 6: The student will list 3 reasons for determining land capability class.
*Objective 7: The student will list 4 factors that determine a land capability class.
*Objective 8: The student will name a suitable use for each land capability class.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Listed the reasons why soil is important.
____*2. Listed the factors which affect soil formation.
____*3. Identified the 2 types of erosion.
____*4. Identified the 3 types of water erosion.
____*5. Listed the management practices that aid in erosion control.
____*6. Listed management practices that aid in erosion control.
____*7. Listed factors that determine a land capability class.
____*8. Named the land capability classes and their uses.

* Indicates core/essential objectives

COURSE: Agriculture Business Management

Unit 15: Computer Applications (15 days)

Core Objectives: Upon completion of this unit, the student will:

*1. name and describe common uses of computers in agricultural/agribusiness operations.
*2. state the capabilities of a computer.
*3. state the limitations of a computer.
*4. list and describe the major parts of a computer.
*5. state precautions to follow in using a computer.
*6. identify the parts of a diskette and their purpose or function.
*7. name precautions to follow in using diskettes.
8. identify the major parts of a microcomputer.
9. state the purpose of the special control keys on a microcomputer.
10. demonstrate the ability to:
    *a. format a diskette.
    *b. copy a diskette.
    *c. calculate a loan amortization table.
    *d. calculate a home budget.
    e. calculate a car trade analysis.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): McCully, James S. Using Microcomputers in Agriculture. Mississippi State, MS: Research and Curriculum Unit. 1984.
"Computer Application Skills." Basic Vocational Education - Section I: Introduction to Occupational Skills. Mississippi State, MS: Research and Curriculum Unit. 1987.

(Note: Programs for performing the abilities indicated in Objectives 10c-10f can be obtained from MCES Computer Applications.)

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will name and describe 6 uses of computers in agricultural/agribusiness operations.
*Objective 2: The student will state 4 capabilities of a computer.
*Objective 3: The student will state 3 limitations of a computer.
*Objective 4: The student will identify the 4 major component groups of a computer.
*Objective 5: The student will state 3 precautions to follow in using a computer.
*Objective 6: The student will identify the 4 major parts of a diskette and describe their purpose or function with 70% accuracy.
*Objective 7: The student will name 6 precautions to follow in handling and using diskettes.
Objective 8: The student will identify the major parts of a microcomputer with 70% accuracy. (Note: Specific parts to be identified will depend upon the brand and type of computer used by the local program.)
Objective 9: The student will state the purpose of the special control keys on a microcomputer keyboard with 70% accuracy. (Note: The specific keys to be identified will depend upon the brand and type of computer used by the local program.)
Objective 10: The student will demonstrate the procedure for:
*a. formatting a diskette.
*b. copying a diskette.
*c. calculating a loan amortization table.
*d. calculating a home budget.
e. calculating a car trade analysis.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Named and described common uses of computers in agricultural/agribusiness operations.
____*2. Stated the capabilities of a computer.
____*3. Stated the limitations of a computer.
____*4. Listed and described the major parts of a computer.
____*5. Stated precautions to follow in using a computer.
____*6. Identified the parts of a diskette and their purpose or function.
____*7. Named precautions to follow in using diskettes.
____8. Identified the major parts of a microcomputer.
____9. Stated the purpose of the special control keys on a microcomputer.

_____10. Demonstrated the ability to:
*a. format a diskette.
*b. copy a diskette.
*c. calculate a loan amortization table.
*d. calculate a home budget.
e. calculate a car trade analysis.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 16: Agricultural Business Organization (5 days)

Core Objectives: Upon completion of this unit, the student will:

*1. list the established principles of business organizations.
*2. name the different types of agricultural business organizations.
3. state advantages and disadvantages of sole proprietorship.
4. state principles of a partnership agreement.
5. state an advantage and a disadvantage of a partnership agreement.
6. describe the differences in a partnership and a limited partnership.
*7. name the characteristics of a corporation.
8. state advantages and disadvantages of the corporation type of organization.
*9. state the difference in a cooperative and a corporation.
*10. list characteristics of a cooperative.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Stewart, Jim and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will list 4 established principles of business organization.
*Objective 2: The student will name the 3 major types of agricultural business organizations.
Objective 3: The student will state 4 advantages and 4 disadvantages of the sole proprietorship type of organization.
Objective 4: The student will state 3 principles of a partnership agreement.
Objective 5: The student will state 1 advantage and 1 disadvantage of a partnership.
Objective 6: The student will describe 2 differences in a partnership and a limited partnership.

*Objective 7: The student will name 3 characteristics of a corporation.

Objective 8: The student will state 4 advantages and 4 disadvantages of the corporation type of organization.

*Objective 9: The student will state the difference in a corporation and a cooperative.

*Objective 10: The student will list 4 characteristics of a cooperative.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Listed the established principles of business organizations.
____*2. Named the different types of agricultural business organizations.
_____3. Stated advantages and disadvantages of sole proprietorship.
_____4. Stated principles of a partnership agreement.
_____5. Stated an advantage and a disadvantage of a partnership agreement.
_____6. Described the differences in a partnership and a limited partnership.
____*7. Named the characteristics of a corporation.
_____8. Stated advantages and disadvantages of the corporation type of organization.
____*9. Stated the difference in a cooperative and a corporation.
___*10. Listed characteristics of a cooperative.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 17: Records and Recordkeeping (7 days)

Core Objectives: Upon completion of this unit, the student will:

*1. name reasons why recordkeeping is essential.
*2. describe the major types of records kept for business purposes.
*3. describe methods for accounting.
*4. describe the methods for reporting income and expenses.
*5. list the steps for keeping records.
*6. name 5 different classes of items that should be included in a beginning inventory and 1 specific example of each class.
*7. describe methods for placing a value on items in the inventory.
8. identify the different categories of business income.
9. identify the different categories of business expenses.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Stewart, Jim and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will name 2 reasons why recordkeeping is essential.
*Objective 2: The student will describe the 4 records summaries that are used in agricultural businesses
*Objective 3: The student will describe the differences in the double-entry and single-entry accounting methods.
*Objective 4: The student will describe the differences in the cash and accrual methods for reporting income and expenses.
*Objective 5: The student will list the 6 steps in the record-keeping process.
*Objective 6: The student will name 5 different classes of items that should be included in the beginning inventory and 1 specific example of each class.

*Objective 7: The student will describe the differences in the cash value and book value methods for placing a value on items in the inventory

Objective 8: The student will identify 9 different categories of agricultural business income.

Objective 9: The student will identify twelve different categories of agricultural business expense.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Named reasons why recordkeeping is essential.
____*2. Described the major types of records kept for business purposes.
____*3. Described methods for accounting.
____*4. Described the methods for reporting income and expenses.
____*5. Listed the steps for keeping records.
____*6. Named 5 different classes of items that should be included in a beginning inventory and one specific example of each class
____*7. Described methods for placing a value on items in the inventory.
_____8. Identified the different categories of business income.
_____9. Identified the different categories of business expenses.

* Indicates core/essential objectives

COURSE: Agricultural Business and Management I

Unit 18: Taxes, Insurance and Business Law (10 days)

Core Objectives: Upon completion of this unit, the student will:

*1. identify items that are needed to complete an income tax worksheet.
*2. state the purpose of an income tax management plan.
*3. name strategies that can increase taxable income levels.
*4. name strategies that can decrease taxable income levels.
*5. describe the coverage provided by the common kinds of insurance.
*6. list points to remember when buying insurance.
*7. name the essential elements of a contract.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Stewart, Jim and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will identify 14 items that are needed to complete an income tax worksheet.
*Objective 2: The student will state the purpose of an income tax management plan.
*Objective 3: The student will name 4 strategies that can increase taxable income levels.
*Objective 4: The student will name 4 strategies that can decrease taxable income levels.
*Objective 5: The student will describe the coverage provided by the 4 major types of insurance.
*Objective 6: The student will list 3 points to remember when buying insurance.
*Objective 7: The student will name three essential elements of a contract.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Identified items that are needed to complete an income tax worksheet.
____*2. Stated the purpose of an income tax management plan.
____*3. Named strategies that can increase taxable income levels.
____*4. Named strategies that can decrease taxable income levels.
____*5. Described the coverage provided by the common kinds of insurance.
____*6. Listed points to remember when buying insurance.
____*7. Named the essential elements of a contract.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 19: Agricultural Marketing (5 days)

Core Objectives: Upon completion of this unit, the student will:

*1. name the factors which determine the price of a product.
*2. state the law of demand.
*3. name factors that can cause a shift in supply.
*4. state the law of supply.
*5. name factors that can cause a shift in supply.
*6. describe the major types of market structures.
*7. state marketing strategies for agricultural business.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Stewart, Jim and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will name 2 primary factors which determine the price of a product.
*Objective 2: The student will state the law of demand.
*Objective 3: The student will name 3 factors that could cause a shift in supply.
*Objective 4: The student will state the law of supply.
*Objective 5: The student will name 2 factors that could cause a shift in supply.
*Objective 6: The student will describe a distinguishing characteristic of each of the 4 major market structures.
*Objective 7: The student will state 4 common marketing strategies.

* Indicates core/essential objectives

Performance Record:

____*1. Named the factors which determine the price of a product.
____*2. Stated the law of demand.
____*3. Named factors that can cause a shift in supply.

____*4. Stated the law of supply.
____*5. Named factors that can cause a shift in supply.
____*6. Described the major types of market structures.
____*7. Stated marketing strategies for agricultural business.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 20: Agricultural Credit (7 days)

Core Objectives: Upon completion of this unit, the student will:

*1. name the advantages of using credit.
*2. name the disadvantages of using credit.
*3. distinguish between the types of credit.
*4. list guidelines for building and keeping a good credit standing.
*5. list distinguishing characteristics of the different types of credit agreements.
*6. name the different types of loans by banks or lending institutions.
*7. name sources of farm credit.
*8. name factors that determine the cost of credit.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma Department of Vocational and Technical Education. 1986.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will name 4 advantages of using credit.
*Objective 2: The student will name 4 disadvantages of using credit.
*Objective 3: The student will state the difference in production credit and consumption credit.
*Objective 4: The student will list 6 guidelines for building and keeping a good credit record.
*Objective 5: The student will list a distinguishing characteristic of each of the 4 major types of credit agreements.

*Objective 6: The student will list distinguishing characteristics of the following types of loans:
(a) collateral loan,
(b) secured personal loan,
(c) unsecured personal loan,
(d) passbook loan,
(e) credit card loan,
(f) mortgage loan,
(g) FmHA loan.

*Objective 7: The student will name 6 different sources of farm credit.

*Objective 8: The student will name 3 factors that determine the cost of credit.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Named the advantages of using credit.
____*2. Named the disadvantages of using credit.
____*3. Distinguished between the types of credit.
____*4. Listed guidelines for building and keeping a good credit standing.
____*5. Listed distinguishing characteristics of the different types of credit agreements.
____*6. Named the different types of loans by banks or lending institutions.
____*7. Named sources of farm credit.
____*8. Named factors that determine the cost of credit.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 21: Budgets (4 days)

Core Objectives: Upon completion of this unit, the student will:

*1. define a budget.
*2. list 4 reasons for budgeting.
*3. identify 2 types of budgets.
4. identify 2 fundamental principles of budgets.
5. identify 4 steps in developing budgets.
*6. identify 2 types of costs.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Stewart, Jim, and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will define a budget.
*Objective 2: The student will list 4 reasons for budgeting.
*Objective 3: The student will identify 2 types of budgets.
Objective 4: The student will identify 4 fundamental principles of budgets.
Objective 5: The student will identify 4 fundamental principles of budgets.
*Objective 6: The student will identity 2 types of costs.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Defined a budget.
____*2. Listed 4 reasons for budgeting.
____*3. Identified 2 types of budgets.

_____4. Identified 4 fundamental principles of budgets.
_____5. Identified 4 steps in developing budgets.
____*6. Identified 2 types of costs.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 22: Property Acquisition (4 days)

Core Objectives: Upon completion of this unit, the student will:

*1. identify 3 approaches to acquiring property.
*2. identify 5 factors to consider in crop-share and cash lease agreements.
3. identify the steps necessary for incorporation in most states.
*4. list 2 factors to consider in determining the value of property.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Dones Farm Management Guide, 16th ed.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will identify 3 approaches to acquiring property.
*Objective 2: The student will identify 5 factors to consider in crop-share and cash lease agreements.
Objective 3: The student will identify the steps necessary for incorporation in most states.
*Objective 4: The student will list 2 factors to consider in determining the value of property.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Identified 3 approaches to acquiring property.
____*2. Identified 5 factors to consider in crop-share and cash lease agreements.
_____3. Identified the steps necessary for incorporation in most states.
____*4. Listed 2 factors to consider in determining the value of property.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 23: Legal Description of Land (3 days)

Core Objectives: Upon completion of this unit, the student will:

*1. describe the system used to establish the legal description of land in Mississippi.
*2. interpret the legal description of a tract of land.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion
Class and home assignments

Suggested Resources:

Primary Resource(s): McCully, James S. "Legal Description of Land." Lesson Plans for Teaching Basic Vocational Agriculture - Section III - Introduction to Soil Management and Classification. Mississippi State: Research and Curriculum Unit. 1983.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will list in order the seven steps in establishing the legal description of a tract of land.
*Objective 2: The student will interpret the legal description of a tract of land.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Described the system used to establish the legal description of land in Mississippi.
____*2. Interpreted the legal description of a tract of land.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 24: Surveying (6 days)

Core Objectives: Upon completion of this unit, the student will:

1. identify the parts of a farm level.
2. identify the types of self-reading rods and describe how each one is read.
3. identify the parts of a rod.
4. state common errors that contribute to incorrect measurement.
5. state rules to follow in providing care of the level.
6. identify hand motions used by the instrument operator to guide the target holder.
7. name things to consider and practice in order to have a good set of records in the field notebook.
8. calculate problems and record the results in a field notebook.
9. demonstrate the ability to:
   a. set up and adjust the farm level.
   b. complete a differential leveling problem.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Patton, Bob. Vocational Agriculture III. Stillwater: Oklahoma State Department of Vocational and Technical Education. 1978.

Evaluation and Suggested Minimum Performance Standards:

Objective 1: The student will identify 9 parts of the farm level.
Objective 2: The student will identify characteristics of each of the 2 types of self reading rods and describe how each is read.
Objective 3: The student will identify the 4 parts of a rod and the use of each part.
Objective 4: The student will state 3 common errors that can contribute to an incorrect measurement.
Objective 5: The student will state 5 rules for caring for the farm level.
Objective 6: The student will identify 6 hand motions used by the instrument operator to guide the target holder.

Objective 7: The student will name 5 things to consider and practice in keeping field notes.

Objective 8: The student will calculate problems and record the results in a field notebook with 70% accuracy.

Objective 9: The student will demonstrate the ability to:
a. set up and adjust the farm level.
b. complete a differential leveling problem.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

_____1. Identified the parts of a farm level.
_____2. Identified the types of self-reading rods and described how each one is read.
_____3. Identified the parts of a rod.
_____4. Stated common errors that contribute to incorrect measurement.
_____5. Stated rules to follow in providing care of the level.
_____6. Identified hand motions used by the instrument operator to guide the target holder.
_____7. Named things to consider and practice in order to have a good set of records in the field notebook.
_____8. Calculated problems and recorded the results in a field notebook.
_____9. Demonstrated the ability to:
a. set up and adjust the farm level.
b. complete a differential leveling problem.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management I

Unit 25: Facility and Equipment Management (10 days)

Core Objectives: Upon completion of this unit, the student will:

1. distinguish between a cutting bill of material and a shopping bill of material.
2. identify the different types of roofs.
3. list factors to consider in planning a farm building.
4. identify the common building materials used in farm construction.
5. list the causes of building failures.
6. list the types of foundations and wall supports.
7. list factors to consider in selecting roofing materials.
8. list items or systems that should be checked on a daily basis.
*9. demonstrate the ability to:
   a. check engine oil levels.
   b. check coolant levels.
   d. check fuel levels.
   e. maintain battery.
   f. check and adjust V-belt tension.
   g. service an oil bath air cleaner.
   h. service a paper element air filter.
   i. check transmission, hydraulic, and final drive fluid levels.
   j. change engine oil and filter.
   k. change engine oil and filter.
   l. change transmission, hydraulic, and final drive fluids and filters.
   m. lubricate front end, brake and clutch pivots, three point hitch etc.
   n. change coolant and service radiator.
   o. service power steering system.
   p. service fuel filter.
   q. adjust brakes.
   r. adjust clutch.
   s. adjust steering and front end.

* Indicates core/essential objectives

Suggested Resources:

Primary Resource(s): Harp, Keith, and Stewart, Jim. Vocational Agriculture II. Stillwater: Oklahoma State Department of Vocational and Technical Education.

Reeder, Dean. Vocational Agriculture IV. Stillwater: Oklahoma State Department of Vocational and Technical Education.

Parade, W. Harold, and Turner, J. Howard. Tractor Maintenance - Principles and Procedures. Athens, GA: AAVIM. 1975.

Turner, L. Howard. Safe Tractor Operation and Daily Care. Athens, GA: AAVIM. 1981.

Evaluation and Suggested Minimum Performance Standards:

Objective 1: The student will state the difference in a cutting bill of material and a shopping bill of material.

Objective 2: The student will identify 4 different types of roofs.

Objective 3: The student will list 4 factors that must be considered in planning a frame building.

Objective 4: The student will identify 7 common materials used in agricultural buildings.

Objective 5: The student will list 3 common causes of building failure.

Objective 6: The student will identify 4 common types of foundations and wall supports.

Objective 7: The student will list 7 factors to consider in selecting roofing materials.

Objective 8: The student will list 5 items or systems that should be checked on a daily basis.

*Objective 9: The student will demonstrate the ability to:

a. check engine oil.
b. check coolant levels.
c. check fuel lines.
d. check tires.
e. maintain battery.
f. check and adjust V-belt tension.
g. service an oil bath air cleaner.
h. service a paper element air filter.
i. check transmission, hydraulic, and final drive fluid levels.
j. service front wheel bearings.
k. change oil and filter.
l. change transmission, hydraulic, and final drive fluids and filters.
m. lubricate front end, brake and clutch pivots, three point hitch etc.

n. change coolant and service radiator.
o. service power steering.
p. service fuel filter.
q. bleed air from a diesel fuel system.
r. adjust brakes.
s. adjust clutch.
t. adjust steering and front end.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

_____1. Distinguished between a cutting bill of material and a shopping bill of material.
_____2. Identified the different types of roofs.
_____3. Listed factors to consider in planning a farm building.
_____4. Identified the common building materials used in farm construction.
_____5. Listed the causes of building failures.
_____6. Listed the types of foundations and wall supports.
_____7. Listed factors to consider in selecting roofing materials.
_____8. Listed items or systems that should be checked on a daily basis.
____*9. Demonstrated the ability to:
a. check engine oil levels.
b. check coolant levels.
c. check fuel lines.
d. check tires.
e. maintain battery.
f. check and adjust V-belt tension.
g. service an oil bath air cleaner.
h. service a paper element air filter.
i. check transmission, hydraulic, and final drive fluid levels.
j. service front wheel bearings.
k. change engine oil and filter.
l. change transmission, hydraulic, and final drive fluids and filters.
m. lubricate front end, brake and clutch pivots, three point hitch etc.
n. change coolant and service radiator.
o. service power steering system.
p. service fuel filter.
q. bleed air from a diesel fuel system.
r. adjust brakes.
s. adjust clutch.
t. adjust steering and front end.

* Indicates core/essential objectives

AGRICULTURE BUSINESS

AND

MANAGEMENT II

Course Guide

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COURSE: AGRICULTURE BUSINESS AND MANAGEMENT II

Unit 1: Overview of Agricultural Business

Unit 2: Leadership

Unit 3: SOE

Unit 4: Agricultural Mathematics

Unit 5: Human Relations in Agricultural Business and Management

Unit 6: Agricultural Communications

Unit 7: Agricultural Salesmanship

Unit 8: Agricultural Business Procedures and Records

Unit 9: Agricultural Advertising and Display

Unit 10: Agricultural Financial Analysis

Unit 11: Agricultural Taxes

Unit 12: Marketing

Unit 13: Agricultural Law

COURSE: Agriculture Business and Management II

Unit 1: Overview of Agricultural Business (5 days)

Core Objectives: Upon completion of this unit, the student will:

*1. define agribusiness management.
*2. define the free enterprise system in relation to the agribusiness industry.
*3. compare the business structures of 3 types of agribusinesses.
*4. outline 3 primary business activities in an agribusiness.
*5. list 3 steps involved in starting an agribusiness.
*6. identify 5 agribusinesses in the local community.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion
Class and home assignements

Suggested Resources:

Primary Resource(s): Stewart, Jim and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985.
Stewart, Bob R. and McCashey, Michael J. and Mullinix, Mark K. Agricultural Business Sales and Marketing. Columbia, Missouri: Instructional Materials Laboratory, University of Missouri.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will define agribusiness management.
*Objective 2: The student will define the free enterprise system in relation to the agriculture industry.
*Objective 3: The student will compare the business structures of 3 types of agribusinesses.
*Objective 4: The student will outline 3 primary business activities in an agribusiness.
*Objective 5: The student will list 3 steps involved in starting an agribusiness.
*Objective 6: The student will identify 5 agribusinesses in the local community.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Defined agribusiness management.
____*2. Defined the free enterprise system in relation to the the agriculture industry.
____*3. Compared the business structures of 3 types of agribusinesses.
____*4. Outlined 3 primary business activities in an agribusiness.
____*5. Listed three steps involved in starting an agribusiness.
____*6. Identified 5 agribusinesses in their local community.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management II

Unit 2: Leadership (8 days)

Core Objectives: Upon completion of this unit the student will:

*1. list 6 requirements to receive the state farmer degree.
*2. list 5 requirements to receive the American farmer degree.
*3. list 4 purposes of the FFA alumni.
*4. fill out a state farmer degree application.

* Indicates core/essential objectives

Suggested Instructional Practices:

Lecture and discussion

Suggested Resources:

Primary Resources: FFA Manual
Patton, Bob and Harp, Keith. Vocational Agriculture I. Stillwater, OK: Oklahoma Department of Vocational and Technical Education. 1984.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will list 6 requirements to receive the state farmer degree.
*Objective 2: The student will list 5 requirements to receive the America farmer degree.
*Objective 3: The student will list 4 purposes of the FFA Alumni.
*Objective 4: The student will fill out a state farmer degree application.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Listed 6 requirements to receive the state farmer degree.
____*2. Listed 5 requirements to rceive the American farmer degree.
____*3. Listed 4 purposes of the FFA alumni.
____*4. Filled out a state farmer degree application.

COURSE: Agriculture Business and Management II

Unit 3: SOE (3 days)

Core Objectives: Upon completion of this unit, the student will:

1. complete an FFA proficiency award based on their SOE.
*2. maintain current records on their SOE programs.

* Indicates core/essential objectives

Suggested Instructional Practices:

Lecture and discussion

Suggested Resources:

Primary Resource(s): SOEP Record Book
FFA Proficiency Award Publications

Evaluation and Suggested Minimum Performance Standards:

Objective 1: The student will complete an FFA proficiency award based on their SOE.
*Objective 2: The student will maintain current records on their SOE programs.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____1. Completed an FFA proficiency award based on their SOE.
____*2. Maintained current records on their SOE programs.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management II

Unit 4: Agricultural Mathematics (10 days)

Core Objectives: Upon completion of this unit, the student will:

*1. demonstrate the ability to convert mixed numbers to improper fractions.
*2. demonstrate the ability to round numbers to the designated decimal places.
*3. convert fractions to decimals.
*4. demonstrate the ability to convert one unit of measure to another using a conversion table.
*5. demonstrate the ability to measure the length of a given object to the nearest millimeter or 1/16th of an inch.
*6. demonstrate the ability to compute the amount of time in a given time period.
*7. demonstrate the ability to compute increases and decreases using percentages.

* Indicates core/essential objectives

Suggested Instructional Practices:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Mississippi. Basic Vocational Education, Section 1, Introduction to Occupational and Employability Skills, Unit 7: Occupational Mathematics Skills. Mississippi State University, Research and Curriculum Unit. 1986.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will convert mixed numbers to improper fractions.
*Objective 2: The student will round numbers to the designated decimal places.
*Objective 3: The student will convert fractions to decimals.
*Objective 4: The student will convert one unit of measure to another using a conversion table.
*Objective 5: The student will measure the length of a given object to the nearest millimeter or 1/16th of an inch.

*Objective 6: The student will compute the amount of time in a given time period.

*Objective 7: The student will compute increases and decreases using percentages.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Demonstrated the ability to convert mixed numbers to improper fractions.

____*2. Demonstrated the ability to round numbers to the designated decimal places.

____*3. Converted fractions to decimals.

____*4. Demonstrated the ability to convert one unit of measure to another using a conversion table.

____*5. Demonstrated the ability to measure the length of a given object to the nearest millimeter or 1/16th of an inch.

____*6. Demonstrated the ability to compute the amount of time in a given time period.

____*7. Demonstrated the ability to compute increases and decreases using percentages.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management II

Unit 5: Human Relations in Agricultural and Business Management (5 days)

Core Objectives: Upon completion of this unit, the student will:

*1. describe the importance of human relations skill and positive personality traits in an agribusiness employee.
*2. distinguish between the skills and traits contributing to an agribusiness employee's success and failure.
*3. contrast how a worker deals with superiors, peers, and subordinates on the job.
*4. describe how constructive critism will be used to the advantage of an agribusiness worker.
*5. list 6 steps involved in systematic program solving.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Stewart, Bob R. and McCashey, Michael J. and Mullinix, Mark K. Agricultural Business Sales and Marketing. Columbia, Missouri: Instructional Materials Laboratory, University of Missouri.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will describe the importance of human relations skills and positive personality traits in an angribusiness employee.
*Objectvie 2: The student will distinguish between the skills and traits contributing to an agribusiness employee's success and failure.
*Objective 3: The student will contrast how a worker deals with superiors, peers, and subordinates on the job.
*Objective 4: The student will describe how constructive criticism will be used to the advantage of an agribusiness worker.
*Objective 5: The student will list 6 steps involved in systematic problem solving.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Described the importance of human relations skills and positive personality traits in an agribusiness employee.
____*2. Distinguished between the skills and traits contributing to an agribusiness employee's success and failure.
____*3. Contrasted how a worker deals with superiors, peers, and subordinates on the job.
____*4. Described how constructive critism will be used to the advantage of an agribusiness worker.
____*5. Listed 6 steps involved in systematic problem solving.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management II

Unit 6: Agricultural Communications (15 days)

Core Objectives: Upon completion of this unit, the student will:

*1. list 4 steps for effective idea presentation and communication.
*2. analyze components of the skills of listening and answering questions.
*3. demonstrate acceptable procedures for answering business telephones and taking telephone messages in an agribusiness setting.
4. explain the role and ramifications of nonverbal communications with regard to verbal communication.
*5. explain the need for the basic elements written communications in agribusiness.
6. compose a business letter and an office memoradum.
*7. prepare a resume, letter of application, and an application form.
*8. compose a 5-7 minute presentation related to an agribusiness topic.

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Stewart, Bob R. and McCashey, Michael J. and Mullinix, Mark K. Agricultural Business Sales and Marketing. Columbia, Missouri: Instructional Materials Laboratory, University of Missouri.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will list 4 steps for effective idea presentation and communication.
*Objective 2: The student will analyze components of the skills of listening and answering questions.
*Objective 3: The student will demonstrate acceptable procedures for answering business telephones and taking telephone messages in an agribusiness setting.
Objective 4: The student will explain the role and ramifications of nonverbal communications with regard to verbal communication.
*Objective 5: The student will explain the need for the basic elements of effective written communications in

agribusiness.

Objective 6: The student will compare a business letter and an office memorandum.

*Objective 7: The student will prepare a resume, letter of application, and an application form.

*Objectvie 8: The student will compare a 5-7 minute written oral presentation related to an agribusiness topic.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Listed 4 steps for effective idea presentation and communication.

____*2. Analyzed components of the skills of listening and answering telephones.

____*3. Demonstrated acceptable procedures for answering business telephones and taking telephone messages in an agribusiness setting.

_____4. Explained the role and ramifications of nonverbal communications with regard to verbal communication.

____*5. Explained the need for and the basic elements of effective written communications in agribusiness.

_____6. Composed a business letter and an office memorandum.

____*7. Prepared a resume, letter of application, and an application form.

____*8. Composed a 5-7 minute written oral presentation related to an agribusiness topic.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management II

Unit 7: Agricultural Salesmanship (8 Days)

Core Objectives: Upon completion of this unit, the student wil:

1. identify the importance of each person "selling" in agribusiness.
*2. list 3 skills needed to sell in agriculture.
*3. select appropriate methods of meeting customer needs.
*4. approach the potential customer.
*5. give a sales presentation of agribusiness supplies and products.
*6. list 4 techniques of suggested selling.
7. effectively handle sales resistance.
8. close a sale.

* Indicates core/essential objectives

Suggested Instructional Practices:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Stewart, Bob R. and McCashey, Michael J. and Mullinix, Mark K. Agricultural Business Sales and Marketing. Columbia, Missouri: Instructional Material Laboratory, University of Missouri.

Evaluation and Suggested Minimum Performance Standards:

Objective 1: The student will identify the importance of each person "selling" in agribusiness.
*Objective 2: The student will list 3 skills needed to sell in agriculture.
*Objective 3: The student will select appropriate methods of meeting customer needs.
*Objective 4: The student will approach the potential customer.
*Objective 5: The student will give a sales presentation of agricultural supplies and products.
*Objective 6: The student will list 4 techniques of suggested selling.
Objective 7: The student will effectively handle sales resistance.
Objective 8: The student will close a sale.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____1. Identified the importance of "selling" in agribusiness.
____*2. Listed 3 skills needed to sell in agriculture.
____*3. Selected appropriate methods of meeting customer needs.
____*4. Approached the potential customer.
____*5. Gave a sales presentation of agricultural supplies and products.
____*6. Listed 4 techniques of suggested selling.
____7. Effectively handled sales resistance.
____8. Closed a sale.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management II

Unit 8: Agricultural Business Procedures and Records (15 days)

Core Objectives: Upon completion of this unit, the student will:

*1. describe why different business procedures and records are needed in an agribusiness.
*2. identify how to make customer transactions.
*3. prepare a sales ticket.
*4. identify the proper procedures for handling credit in an agribusiness.
*5. describe how inventory is managed and how the selling price of merchandise is determined.
*6. describe the basic elements of recordkeeping and checking account procedures.
*7. identify how sales and purchasing records are kept.
*8. identify types of insurance needed by agribusinesses to help protect them from losses.
9. list 8 parts of the cash register.
10. describe the function of each part of a cash register.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Stewart, Bob R. and McCashey, Michael J. and Mullinix, Mark K. Agricultural Business Sales and Marketing. Columbia, Missouri: Instructional Material Laboratory, University of Missouri.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will describe why different business procedures and records are needed in an agribusiness.
*Objective 2: The student will identify how to make customer transactions.
*Objective 3: The student will prepare a sales ticket.
*Objective 4: The student will identify the proper procedures for handling credit in an agribusiness.

*Objective 5: The student will describe how inventory is managed and how the selling price of merchandise is determined.
*Objective 6: The student will describe the basic elements of recordkeeping and checking account procedures.
*Objective 7: The student will identify how sales and purchasing records are kept.
*Objective 8: The student will identify types of insurance needed by agribusinesses to help protect them from losses.
Objective 9: The student will list 8 parts of the cash register.
Objective 10: The student will be able to describe the function of each part of a cash register.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Described why different business procedures and records are needed in an agribusiness.
____*2. Identified how to make customer transactions.
____*3. Prepared a sales ticket.
____*4. Identified the proper procedures for handling credit in an agribusiness.
____*5. Described how inventory is managed and how the selling price of merchandise is determined.
____*6. Described the basic elements of recordkeeping and checking account procedures.
____*7. Identified how sales and purchasing records are kept.
____*8. Identified types of insurance needed by agribusiness to help protect them from losses.
____9. Listed 8 parts of the cash register.
____10. Described the function of each part of a cash register.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management II

Unit 9: Agricultural Advertising and Display (5 days)

Core Objectives: Upon completion of this unit, the student will:

1. list 6 methods of promotions as related to agriculture.
2. describe how advertising is used in agribusiness.
*3. list 3 types of advertising media used by agribusiness.
4. design an agribusiness display.
5. design an agribusiness advertisement.

* Indicates core/essential objectives

Suggested Instructional Procedures

Lecture and discussion
Laboratory demonstration and practice

Suggested Resources:

Primary Resource(s): Stewart, Bob R. and McCashey, Michael J. and Mullinix, Mark K. Agricultural Business Sales and Marketing. Columbia, Missouri: Instructional Materials Laboratory, University of Missouri.

Evaluation and Suggested Minimum Performance Standards:

Objective 1: The student will list 6 methods of promotions as related to agriculture.
Objective 2: The student will describe how advertising is used in agribusiness.
*Objective 3: The student will list 3 types of advertising media used by agribusiness.
Objective 4: The student will design an agribusiness display.
Objective 5: The student will design an agribusiness advertisement.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

_____1. Listed 6 methods of promotions as related to agriculture.
_____2. Described how advertising is used in agribusiness.

____*3. Listed 3 types of advertising media used by agribusiness.
____4. Designed an agribusiness display.
____5. Designed an agribusiness advertisement.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management II

Unit 10: Agricultural Financial Analysis (10 days)

Core Objectives: Upon completion of this unit, the student will:

*1. define terms related to financial analysis.
*2. list the 3 parts of a net worth statement.
*3. list the 3 catagories of assets.
*4. list the 3 catagories of liabilities.
*5. complete a personal net worth statement.
*6. list the 2 types of depreciation.
*7. compute depreciation on equipment listed in the SOE record book.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion
Demonstration and practice

Suggested Resources:

Primary Sources: Stewart, Jim and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will define terms related to financial analysis.
*Objective 2: The student will list the 3 parts of a net worth statement.
*Objective 3: The student willlist the 3 catagories of assets.
*Objective 4: The student will list the 3 catagories of liabilities.
*Objective 5: The student will complete a personal net worth statement.
*Objective 6: The student will list the 2 types of depreciation.
*Objective 7: The student will compute depreciation on equipment listed in the SOE record book.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Defined terms related to financial analysis.
____*2. Listed the 3 parts of a net worth statement.
____*3. Listed the 3 catagories of assets.
____*4. Listed the 3 catagories of liabilities.
____*5. Completed a personal net worth statement.
____*6. Listed the 2 types of depreciation.
____*7. Computed depreciation on equipment listed in the SOE record book.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management II

Unit 11: Agricultural Taxes (15 days)

Core Objectives: Upon completion of this unit, the student will:

*1. complete a 1040EZ form.
*2. identify 4 sources of law.
*3. list the 2 types of accounting methods.
*4. explain the 2 types of accounting methods.
*5. list 4 responsibilities of the agriculture employee concerning social security.
*6. name 3 kinds of social security benefits.
*7. complete a state income tax form.
*8. complete a W-2 form.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion
Demonstration and practice

Suggested Resources:

Primary Sources: Stewart, Jim and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will complete a 1040EZ form.
*Objective 2: The student will identify 4 sources of law.
*Objective 3: The student will list the 2 types of accounting methods.
*Objective 4: The student will explain the 2 types of accounting methods.
*Objective 5: The student will list 4 responsibilities of the agricultural employee concerning social security.
*Objective 6: The student will name 3 kinds of social security benefits.
*Objective 7: The student will complete a state income tax form.
*Objective 8: The student will complete a W-2 form.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Completed a 1040EZ form.
____*2. Identified 4 sources of law.
____*3. Listed the 2 types of accounting methods.
____*4. Explained the 2 types of accounting methods.
____*5. Listed 4 responsibilities of the agriculture employee concerning social security.
____*6. Named 3 kinds of social security benefits.
____*7. Completed a state income tax form.
____*8. Completed a W-2 form.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management II

Unit 12: Marketing (20 days)

Core Objectives: Upon completion of this unit, the student will:

*1. define retail marketing.
*2. define wholesale marketing.
3. identify 3 retail outlets in their community.
4. identify 3 wholesale outlets in their community.
*5. list 2 items that affect pricing.
6. identify 3 factors that affect pricing in various local retail outlets.
7. select a commodity and report to the class at the end of one week the increase or decrease of their commodity's price and why.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Stewart, Jim and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will define retail marketing.
*Objective 2: The student will define wholesale marketing.
Objective 3: The student will identify 3 retail outlets in their community.
Objective 4: The student will identify 3 wholesale outlets in their community.
*Objective 5: The student will list 2 items that effect pricing.
Objective 6: The student will identify 3 factors that affect pricing in various local retail outlets.
Objective 7: The student will select a commodity and report to the class at the end of one week the increase or decrease of their commodity's price and why.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Defined retail marketing.
____*2. Defined wholesale marketing.
____3. Identified 3 retail outlets in their community.
____4. Identified 3 wholesale outlets in their community.
____*5. Listed 2 items that effect pricing.
____6. Identified 3 factors that affect pricing in various local retail outlets.
____7. Selected a commodity and reported to the class at the end of one week the increase or decrease of their commodity's price and why.

* Indicates core/essential objectives

COURSE: Agriculture Business and Management II

Unit 13: Agricultural Law (12 days)

Core Objectives: Upon completion of this unit, the student will:

*1. list 2 types of contracts.
*2. differentiate between the 2 types of contracts.
*3. list 5 kinds of contracts which must be in writing.
*4. list 3 elements which are essential to have an enforceable contract.
*5. complete the contract portion of the SOE record book.

* Indicates core/essential objectives

Suggested Instructional Procedures:

Lecture and discussion

Suggested Resources:

Primary Resource(s): Stewart, Jim and Jobes, Raleigh. Farm and Ranch Business Management. Moline, IL: Deere and Company. 1985.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will list 2 types of contracts.
*Objective 2: The student will differentiate between the 2 types of contracts.
*Objective 3: The student will list 5 kinds of contracts which must be in writing.
*Objective 4: The student will list 3 elements which are essential to have an enforceable contract.
*Objective 5: The student will complete the contract portion of the SOE record book.

* Indicates core/essential objectives

Performance Record:

Place a check by each objective the student achieved.

____*1. Listed 2 types of contracts.
____*2. Differentiated between the 2 types of contracts.
____*3. Listed 5 kinds of contracts which must be in writing.

____*4. Listed 3 elements which are essential to have an enforceable contract.

____*5. Completed the contract portion of the SOE record book.

* Indicates core/essential objectives

FORESTRY I

Course Guide

Developed By:

Chips Shepherd, Quitman
Carl Johnson, Ackerman
Rayford Williamson, Philadelphia

Forestry I

Unit No.	Title
1	Orientation and Terminology
2	Insect and Diseases
3	Timber Stand Improvement (T.S.I.)
4	Marking Timber
5	Marketing
6	Timber Harvesting
7	Wildlife Management
8	Forest Reproduction
9	Fire Fighting
10	Prescribed Burning

COURSE: Forestry I

Unit 1: Orientation (2 days)

Objectives: Upon completion of this unit, the student should be able to:

1. describe the history of forestry in the United States.
2. list the careers available in the field of forestry.

Suggested Instructional Procedures:

Lecture and class discussion

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith, Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.

Evaluation and Suggested Minimum Performance Standards:

Objective 1: The student will describe the history of forestry in the United States.
Objective 2: The student will list 4 careers available in the field of forestry.

Performance Record:

Place a check by each objective the student achieved:

_____1. Described the history of forestry in the United States.
_____2. Listed the careers available in forestry.

COURSE: Forestry I

Unit 2: Insects and Diseases (8 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. define the terms associated with forest insects and diseases.
*2. list the reasons for identifying insect and disease damage.
*3. match the insect or disease with the symptoms of damage.
*4. list the various methods used to control insects and diseases.
*5. demonstrate the ability to identify insect and disease damage.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture, classroom discussion and laboratory experience.

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith, Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will define the terms associated with forest insects and disease.
*Objective 2: The student will list 2 reasons for identifying insect and disease damage.
*Objective 3: The student will match the symptoms of damage to the insect or disease.
*Objective 4: The student will list 3 methods used to control forest insects and diseases.
*Objective 5: The student will demonstrate the ability to identify insect and disease damage with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Defined the terms associated with forest insects and diseases.
____*2. Listed the reasons for identifying insect and disease damage.
____*3. Matched the symptoms of damage to the insect or disease.
____*4. Listed the methods used to control forest insects and diseases.
____*5. Demonstrated the ability to identify insect and disease damage.

* Indicates essential objectives

COURSE: Forestry I

Unit 3: Timber Stand Improvement (16 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. define the terms associated with timber stand improvement.
*2. list the different types of crown classes.
*3. list the methods of improvement.
*4. demonstrate the ability to:
    a. classify timber stand improvement needs.
    b. complete a tree injection.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture, classroom discussion and laboratory experience.

Suggested Resources:

Primary Resource(s): Hawley, Ralph C. and David M. Smith. The Practice of Silviculture. New York: Wiley & Sons.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will define the terms associated with timber stand improvement.
*Objective 2: The student will list the 4 types of crown classes.
*Objective 3: The student will list 4 methods of improvement.
*Objective 4: The student will demonstrate the ability to:
    a. classify timber stand improvement needs with 70% accuracy.
    b. complete a tree injection with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Defined the terms associated with timber stand improvement.
____*2. Listed the types of crown classes.
____*3. Listed the methods of improvement.
____*4. Demonstrated the ability to:
    a. classify timber stand improvement needs.
    b. complete a tree injection.

* Indicates essential objectives

COURSE: Forestry I

Unit 4: Marking Timber (10 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. define terms associated with marking timber.
*2. list the methods of marking timber.
*3. list the priority of trees to be marked.
*4. demonstrate the ability to mark timber.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture, classroom discussion and laboratory experience.

Suggested Resources:

Primary Resource(s): Curtis, Ed. Forestry. Stillwater: Oklahoma State Dept. of Vo. and Tech. Ed. 1974.
Hawley, Ralph C. and David M. Smith. The Practice of Silviculture. New York: Wiley and Sons.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will define the terms associated with marking timber.
*Objective 2: The student will list 3 methods of marking timber.
*Objective 3: The student will list the priority of trees to be marked.
*Objective 4: The student will demonstrate the ability to mark timber with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Defined the terms associated with timber marking.
____*2. Listed the 3 methods of marking timber.
____*3. Listed the priority of trees to be marked.
____*4. Demonstrated the ability to mark timber.

* Indicates essential objectives

COURSE: Forestry I

Unit 5: Marketing (5 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. define the terms associated with marketing timber.
*2. list the basic items for selling timber.
*3. list the essential parts of a contract.
*4. demonstrate the ability to negotiate a contract.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture and classroom discussion

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith, Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will match the terms associated marketing timber.
*Objective 2: The student will list 4 items for selling timber.
*Objective 3: The student will list the 4 essential parts of a contract.
*Objective 4: The student will demonstrate the ability to negotiate a contract with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Matched the terms associated with timber marketing.
____*2. Listed the basic items for selling timber.
____*3. Listed the essential parts of a contract.
____*4. Demonstrated the ability to negotiate a contract.

* Indicates essential objectives

COURSE: Forestry I

Unit 6: Timber Harvesting (25 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. define the terms associated with timber harvesting.
*2. list the methods of harvesting timber.
*3. list the products of harvesting.
*4. demonstrate the ability to organize and carry out a timber harvesting operation.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture, classroom discussion and laboratory experience.

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith, Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.

Evaluation and Minimum Performance Standards:

*Objective 1: The student defined the terms associated timber harvesting.
*Objective 2: The student listed 3 methods of harvesting timber.
*Objective 3: The student listed 4 products of harvesting.
*Objective 4: The student will demonstrate the ability to organize and carry out a timber harvesting operation with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Defined the terms associated with harvesting.
____*2. Listed the methods of harvesting.
____*3. Listed the products of harvesting.
____*4. Demonstrated the ability to organize and carry out a timber harvesting operation.

* Indicates essential objectives

COURSE: Forestry I

Unit 7: Wildlife Management (10 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. define the terms associated with wildlife management.
*2. discuss the history of wildlife management.
*3. list the species of wildlife found in Mississippi.
*4. match the forest habitat requirements to each specie.
*5. demonstrate the ability to set up and carry out a wildlife management plan on a given area.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture, classroom discussion and laboratory experience.

Suggested Resources:

Primary Resource(s): Madison, John and Ed Kozicky. Game, Gunners and Biology. Winchester-Western Division. Winchester Press. 1971.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will define the terms associated with wildlife biology.
*Objective 2: The student will describe the history of wildlife biology.
*Objective 3: The student will list 6 species of wildlife found in Mississippi.
*Objective 4: The student will match the forest habitat requirements to each specie.
*Objective 5: The student will demonstrate the ability to set up and carry out a wildlife management plan on a given area with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Defined the terms associated with wildlife management.
____*2. Described the history of wildlife management.
____*3. Listed the species of wildlife found in Mississippi.
____*4. Matched the forest habitat requirements to each specie.
____*5. Demonstrated the ability to set up and carry out a wildlife management plan on a given area.

* Indicates essential objectives

COURSE: Forestry I

Unit 8: Forest Reproduction (20 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. define the terms associated with forest reproduction.
*2. list the sources of tree seedlings.
*3. describe the methods of handling seedlings.
*4. list the methods of planting.
*5. demonstrate the ability to hand- and machine-plant seedlings.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture, classroom discussion and laboratory experience.

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith, Forests and Forestry. Danville, Ill. The Interstate Printers and Publishers, Inc.
Hawley, Ralph C. and David A. Smith. The Practice of Silviculture. New York: Wiley and Sons.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will define the terms associated with forest reproduction.
*Objective 2: The student will list 3 sources of tree seedlings.
*Objective 3: The student will describe the correct methods for handling tree seedlings.
*Objective 4: The student will list the 3 methods for planting seeds/seedlings.
*Objective 5: The student will demonstrate the ability to hand- and machine-plant seedlings with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Defined the terms associated with forest reproduction.
____*2. Listed the sources for obtaining seedlings.
____*3. Described the correct method of handling seedlings
____*4. Listed the methods for planting seeds/seedling.
____*5. Demonstrated the ability to hand- and machine-plant seedlings.

* Indicates essential objectives

COURSE: Forestry I

Unit 9: Fire Fighting (10 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. define the terms associated with fire fighting.
*2. list the elements of the fire triangle.
*3. list the classes of fires.
*4. list the methods of attack.
5. match fire fighting hand tools to their correct use.
*6. demonstrate the ability to use hand tools and function as a member of a fire crew.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture, classroom discussion and laboratory experience.

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith, Forests and Forestry. Danville, Ill. The Interstate Printers and Publishers, Inc.
USDA Forest Service. A Guide to Fire Prescription. Washington, D.C.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will define the terms associated with fire fighting.
*Objective 2: The student will list the 3 elements of the fire triangle.
*Objective 3: The student will list the 3 classes of fires.
*Objective 4: The student will list the 2 methods of attack.
Objective 5: The student will match 5 fire fighting hand tools to their correct use.
*Objective 6: The student will demonstrate the ability to use hand tools and function as a member of a fire crew with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Defined the terms associated with fire fighting.
____*2. Listed the elements of the fire triangle.

____*3. Listed the classes of fire.
____*4. Listed the methods of attack.
____5. Matched the hand tools to their correct use.
____*6. Demonstrated the ability to use hand tools and function as a member of a fire crew.

* Indicates essential objectives

COURSE: Forestry I

Unit 10: Prescribed Burning (25 days)

Objectives: Upon completion of this unit the student, should be able to:

*1. define terms associated with prescribed burning.
*2. list the reasons for prescribed burning.
*3. describe the correct conditions for prescribed burning.
*4. demonstrate the ability to develop a burn plan.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture, classroom discussion and laboratory experience.

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith, Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.
USDA Forest Service. A Guide to Fire Prescription. Washington, D.C.
Curtis, Ed. Forestry. Stillwater: Oklahoma Dept. of Vo. and Tech. Ed. 1974

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will define the terms associated with prescribed burning.
*Objective 2: The student will list 4 reasons for prescribed burning.
*Objective 3: The student will describe the correct conditions.
*Objective 4: The student will demonstrate the ability to develop a burn plan with 70% accuracy.

* Indicates essential objectives

Performance Record:

Placed a check by each objective the student achieved:

____*1. Defined the terms associated with prescribed burning.
____*2. Listed the reasons for burning.
____*3. Described the correct conditions for burning.
____*4. Demonstrate the ability to develop a burn plan.

* Indicates essential objectives

FORESTRY II

Course Guide

Developed By

Chips Shepherd, Quitman
Carl Johnson, Ackerman
Rayford Williamson, Philadelphia

Forestry II

Unit No.	Title
1	Orientation and Terminology
2	Tree Identification
3	Forest Land Location
4	Forest Surveying
5	Mapping
6	Tree Measurement
7	Plot Cruising
8	Strip Cruising
9	Log Scaling

COURSE: Forestry II

Unit 1: Orientation (2 days)

Objectives: Upon completion of this unit the student should be able to:

1. describe the importance of forestry in the U.S. and Mississippi.
2. describe the multiple-use concept of forests.

Suggested Instructional Procedures:

Lecture, lab and discussion

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith. Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.
Curtis, Ed. Forestry. Stillwater: Oklahoma State Dept. of Vocational and Technical Education. 1974.

Evaluation and Suggested Minimum Performance Standards:

Objective 1: The student will describe the importance of forestry in the U.S. and Mississippi.
Objective 2: The student will describe the multiple-use concept of forests.

Performance Record: Place a check by each objective the student achieved:

_____1. Described the importance of forestry in the U.S. and Mississippi.
_____2. Described the multiple-use concept of forestry.

COURSE: Forestry II

Unit 2: Tree Identification (20 days)

Objectives: Upon compleiton of this unit, the student should be able to:

*1. define terms associated with identifying Mississippi trees.
2. label the parts of a simple leaf.
*3. identify leaf arrangements.
4. label the parts of a tree.
*5. demonstrate the ability to identify trees.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture, lab and discussion

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith. Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.
Curtis, Ed. Forestry. Stillwater: Oklahoma State Dept. of Vocational and Technical Education. 1974.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will define terms associated with identifying Mississippi trees.
Objective 2: The student will label parts of a simple leaf.
*Objective 3: The student will identify leaf arrangements.
Objective 4: The student will label the parts of a tree.
*Objective 5: The student will demonstrate the ability to identify trees, with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Defined terms associated with identifying Mississippi trees.
____2. Labeled the parts of a simple leaf.
____*3. Identified leaf arrangements.
____4. Labeled the parts of a tree.
____*5. Demonstrated the ability to identify trees.

* Indicates essential objectives

COURSE: Forestry II

Unit 3: Forest Land Location (20 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. match terms associated with forest land location.
*2. list three reasons land location is a necessary forestry task.
*3. select from a list the three methods of land survey systems found in the U.S.
*4. match a list of subdivisions of the rectangular system of survey to a sketch.
*5. determine the number of acres from a legal description by reading and by sketching.
6. list the three types of line and corner markings.
*7. demonstrate the ability to locate a parcel of land and write a land description.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture, lab and discussion

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith. Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.
Curtis, Ed. Forestry. Stillwater: Oklahoma State Dept. of Vocational and Technical Education. 1974.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will match terms associated with forest land location.
*Objective 2: The student will list three reasons land location is a necessary forestry task.
*Objective 3: The student will select from a list the three methods of land survey systems found in the U.S.
*Objective 4: The student will match a list of subdivisions of the rectangular system of survey to a sketch.
*Objective 5: The student will determine the number of acres from a legal description by reading and sketching.
Objective 6: The student will list the three types of line and corner markings.
*Objective 7: The student will demonstrate the ability to locate a parcel of land and write a land description with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Matched terms associated with forest land location.
____*2. Listed three reasons land location is a necessary forestry task.
____*3. Selected from a list the three methods of land survey systems found in the U.S.
____*4. Matched a list of subdivisions of the rectangular system of survey to a sketch.
____*5. Determined the number of acres from a legal description by reading and by sketching.
____6. Listed the three types of line and corner markings.
____*7. Demonstrated the ability to locate a parcel of land and write a land description.

* Indicates essential objectives

COURSE: Forestry II

Unit 4: Forest Surveying (26 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. match terms associated with forest surveying.
*2. list two methods used to measure horizontal distances.
*3. list the six types of equipment used in forest surveying.
*4. list the six steps in chaining horizontal distances.
5. list the three steps in chaining slopes.
6. list the three parts of a compass.
*7. list the two directions obtained from a compass.
*8. list the five steps in correctly using a compass.
*9. demonstrate the ability to:
    a. develop a pacing skill
    b. complete a compass course.
    c. survey a given area.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture, lab and discussion

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith. Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.
Curtis, Ed. Forestry. Stillwater: Oklahoma State Dept. of Vocational and Technical Education. 1974.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will match terms associated with forest surveying.
*Objective 2: The student will list two methods used to measure horizontal distances.
*Objective 3: The student will list the six types of equipment used in forest surveying.
*Objective 4: The student will list the six steps in chaining horizontal distances.
Objective 5: The student will list the three steps in chaining slopes.
Objective 6: The student will list the three parts of a compass.
*Objective 7: The student will list the two directions obtained from a compass.
*Objective 8: The student will list the five steps in correctly using a compass.

*Objective 9: The student will demonstrate the ability to:
a. develop a pacing skill, with 70% accuracy.
b. complete a compass course, with 70% accuracy.
c. survey a given area, with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Matched terms associated with forest surveying.
____*2. Listed two methods used to measure horizontal distances.
____*3. Listed the six types of equipment used in forest surveying.
____*4. Listed the six steps in chaining horizontal distances.
____ 5. List the three steps in chaining slopes.
____6. Listed the three parts of a compass.
____*7. Listed the two directions obtained from a compass.
____*8. Listed the five steps in correctly using a compass.
____*9. Demonstrated the ability to:
a. develop a pacing skill.
b. complete a compass course.
c. survey a given area.

* Indicates essential objectives

COURSE: Forestry II

Unit 5: Mapping (15 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. match terms associated with mapping.
*2. list three reasons for mapping.
*3. draw a map from field data collected.
*4. draw a map from an aerial photo.
*5. demonstrate the ability to draw a type map.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture and class discussion

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith. Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.
Avery, Eugene T. Forester's Guide to Aerial Photo Interpretation. U.S.D.A. Forest Service. Ag. Handbook No. 308, Oct. 1966, Revised Dec. 1969.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will match terms associated with mapping.
*Objective 2: The student will list three reasons for mapping.
*Objective 3: The student will draw a map from field data collected.
*Objective 4: The student will draw a map from an aerial photo.
*Objective 5: The student will demonstrate the ability to draw a type map with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Matched terms associated with mapping.
____*2. Listed three reasons for mapping.
____*3. Drew a map from field data collected.
____*4. Drew a map from an aerial photo.
____*5. Demonstrated the ability to draw a type map.

* Indicates essential objectives

COURSE: Forestry II

Unit 6: Tree Measurements (10 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. match terms associated with tree measurements.
2. list three tools used in measuring tree diameter.
*3. list seven steps in measuring tree diameter.
*4. list three tools used in determining tree height.
*5. draw a diagram describing the principle of height measurement.
*6. determine the height of trees using the Suunto clinometer.
*7. demonstrate the ability to determine the volume of standing timber.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture and class discussion

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith. Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.
Curtis, Ed. Forestry. Stillwater: Oklahoma State Dept. of Vocational and Technical Education. 1974.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will match terms associated with tree measurement.
Objective 2: The student will list three tools used in measuring tree diameter.
*Objective 3: The student will list seven steps in measuring tree diameter.
*Objective 4: The student will list three tools used in determining tree height.
*Objective 5: The student will draw a diagram describing the principle of height measurement.
*Objective 6: The student will determine the height of trees using the Suunto clinometer.
*Objective 7: The student will demonstrate the ability to determine the volume of standing timber, with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Matched terms associated with tree measurement.
____ 2. Listed three tools used in measuring tree diameter.
____*3. Listed seven steps in measuring tree diameter.
____*4. Listed three tools used in determining tree height.
____*5. Drew a daigram describing the principle of height measurement.
____*6. Determined the height of trees using the Suunto clinometer.
____*7. Demonstrated the ability to determine the volume of standing timber.

* Indicates essential objectives

COURSE: Forestry II

Unit 7: Plot Cruising (20 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. match terms associated with plot cruising.
*2. select from a list the commonly used plot forms and sizes.
*3. list the four radiis of commonly used plot sizes.
*4. list two methods of determining cruise intensity for plot cruising.
*5. list three methods of planning a sampling layout.
*6. arrange in order the steps to complete a systematic plot cruise layout.
*7. list the seven steps in carrying out a plot cruise.
8. list advantages and disadvantages of plot cruising as compared to strip cruising.
*9. demonstrate the ability to:
    a. complete a systematic plot cruise.
    b. determine sawtimber and pulpwood volume by plot cruising.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture and class discussion

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith. Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.
Curtis, Ed. Forestry. Stillwater: Oklahoma State Dept. of Vocational and Technical Education. 1974.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will match terms associated with plot cruising.
*Objective 2: The student will select from a list the commonly used plot forms and sizes.
*Objective 3: The student will list the four radiis of commonly used plot sizes.
*Objective 4: The student will list two methods of determining cruise intensity for plot cruising.
*Objective 5: The student will list three methods of planning a sampling layout.
*Objective 6: The student will arrange in order the steps to complete a systematic plot cruise layout.

*Objective 7: The student will list the seven steps in carrying out a plot cruise.

Objective 8: The student will list advantages and disadvantages of plot cruising as compared to strip cruising.

*Objective 9: The student will demonstrate the ability to:

a. complete a systematic plot cruise, with 70% accuracy.

b. determine sawtimber and pulpwood volume by plot cruising, with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Matched terms associated with plot cruising.
____*2. Selected from a list the commonly used plot forms and sizes.
____*3. Listed the four radiis of commonly used plot sizes.
____*4. Listed two methods of determining cruise intensity for plot cruising.
____*5. Listed three methods of planning a sampling layout.
____*6. Arranged in order the steps to complete a systematic plot cruise layout.
____*7. Listed the seven steps in carrying out a plot cruise.
____8. Listed advantages and disadvantages of plot cruising as compared to strip cruising.
____*9. Demonstrated the ability to:
a. complete a systematic plot cruise.
b. determine sawtimber and pulpwood volume by plot cruising.

* Indicates essential objectives

COURSE: Forestry II

Unit 8: Strip Cruising (15 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. match terms associated with strip cruising.
*2. select from a list four reasons for cruising.
*3. determine cruise intensity.
*4. arrange in order the procedure for doing a strip cruise.
*5. list the four steps used to determine total acreage from a strip cruise.
*6. determine the blow-up factor for a strip cruise.
*7. list the duties of a two-man strip cruise crew.
8. list advantages and disadvantages of strip cruising.
*9. demonstrate the ability to:
    a. lay out and complete a strip cruise.
    b. determine sawtimber volume by strip cruising.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture, lab and discussion

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith. Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.
Curtis, Ed. Forestry. Stillwater: Oklahoma State Dept. of Vocational and Technical Education. 1974.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will match terms associated with strip cruising.
*Objective 2: The student will select from a list four reasons for cruising.
*Objective 3: The student will determine cruise intensity.
*Objective 4: The student will arrange in order the procedure for doing a strip cruise.
*Objective 5: The student will list the four steps used to determine total acreage from a strip cruise.
*Objective 6: The student will determine the blow-up factor for a strip cruise.
*Objective 7: The student will list duties of a two-man strip cruise crew.
Objective 8: The student will list advantages and disadvantages of strip cruising.

*Objective 9: The student will demonstrate the ability to:
a. lay out and complete a strip cruise, with 70% accuracy.
b. determine sawtimber volume by strip cruising, with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Matched terms associated with strip cruising.
____*2. Selected from a list four reasons for cruising.
____*3. Determined cruise intensity.
____*4. Arranged in order the procedure for doing a strip cruise.
____*5. Listed the four steps used to determine total acreage from a strip cruise.
____*6. Determined the blow-up factor for a strip cruise.
____*7. Listed the duties of a two-man strip cruise crew.
____8. Listed advantages and disadvantages of strip cruising.
____*9. Demonstrated the ability to:
a. lay out and complete a strip cruise.
b. determine sawtimber volume by strip cruising.

* Indicates essential objectives

COURSE: Forestry II

Unit 9: Log Scaling (3 days)

Objectives: Upon completion of this unit, the student should be able to:

*1. match terms associated with log scaling.
*2. list the three commonly used log rules in the South.
3. list the three parts of a scale stick.
*4. list the five steps in the procedure of log scaling.
*5. list six kinds of defects found in logs.
*6. demonstrate the ability to:
    a. identify types of defects.
    b. scale net volume of logs.

* Indicates essential objectives

Suggested Instructional Procedures:

Lecture, lab and discussion

Suggested Resources:

Primary Resource(s): Anderson, David A. and William A. Smith. Forests and Forestry. Danville, Ill.: The Interstate Printers and Publishers, Inc.
Curtis, Ed. Forestry. Stillwater: Oklahoma State Dept. of Vocational and Technical Education. 1974.

Evaluation and Suggested Minimum Performance Standards:

*Objective 1: The student will match terms associated with log scaling.
*Objective 2: The student will list the three commonly used log rules in the South.
Objective 3: The student will list the three parts of a scale stick.
*Objective 4: The student will list the five steps in the procedure of log scaling.
*Objective 5: The student will list six kinds of defects found in logs.
*Objective 6: The student will demonstrate the ability to:
a. identify types of defects, with 70% accuracy.
b. scale net volume of logs, with 70% accuracy.

* Indicates essential objectives

Performance Record:

Place a check by each objective the student achieved:

____*1. Matched terms associated with log scaling.
____*2. Listed the three commonly used log rules in the South.
____ 3. Listed the three parts of a scale stick.
____*4. Listed the five steps in the procedure of log scaling.
____*5. Listed six kinds of defects found in logs.
____*6. Demonstrated the ability to:
a. identify types of defects.
b. scale net volume of logs.

* Indicates essential objectives